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ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY CLASS I PERMIT

COMPANY: **Phelps Dodge Corporation**
FACILITY: **Phelps Dodge Miami, Inc.**
PERMIT #: **1000046**
DATE ISSUED: **PROPOSED FINAL PERMIT (EPA REVIEW)**
EXPIRY DATE:

ABSTRACT

This Title V permit is issued to Phelps Dodge Miami, Inc., the Permittee, for operation of their smelter located off of Hwy 60 in Miami, Arizona.

Phelps Dodge Miami, Inc. operates a copper smelting facility in Miami, AZ. The facility consists of a Isasmelt Furnace, Electric Furnace, Five (5) Converters (Four Hoboken and one Inspiration), Anode Furnace and Utility Vessels, Electrolytic Refinery, Rod Plant, Acid Plant, and other support equipment.

The facility is classified as a Major Source pursuant to A.A.C. R18-2-101.61. The potential emission rates of the following pollutants are greater than major source thresholds: (i) particulate matter with an aerodynamic diameter less than 10 microns, (ii) sulfur dioxide, (iii) nitrogen oxides, (iv) carbon monoxide, and (v) hazardous air pollutants.

This permit is issued in accordance with Title 49, Chapter 3 of the Arizona Revised Statutes. All definitions, terms, and conditions used in this permit conform to those in the Arizona Administrative Code R18-2-101 et. seq. (A.A.C.) and 40 Code of Federal Regulations (CFR), except as otherwise defined in this permit. All terms and conditions in this permit (unless specifically identified as "State-Only") are enforceable by the Administrator of the U.S. Environmental Protection Agency.

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ATTACHMENT "A": GENERAL PROVISIONS

Air Quality Control Permit No. 1000046
for
Phelps Dodge Miami, Inc.

I. PERMIT EXPIRATION AND RENEWAL

[A.R.S. § 49-426.F, A.A.C. R18-2-304(C)(2), 306(A)(1), and 322]

A. This permit is valid for a period of five years from the date of issuance of the permit.

B. The Permittee shall submit an application for renewal of this permit at least 6 months, but not more than 18 months prior to the date of permit expiration.

II. COMPLIANCE WITH PERMIT CONDITIONS

[A.A.C. R18-2-306(A)(8)(a) and (b), A.R.S. § 49-463, and A.R.S. §49-464]

A. The Permittee shall comply with all the conditions contained in Attachments “A”, “B”, “C”, “D”, and “E” of this permit including all applicable requirements of Arizona air quality statutes and the air quality rules. Any permit noncompliance is grounds for enforcement action; for permit termination, revocation and reissuance, or revision; or for denial of a permit renewal application. In addition, noncompliance with any federally enforceable requirement constitutes a violation of the Clean Air Act (Act).

B. It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

III. PERMIT REVISION, REOPENING, REVOCATION AND REISSUANCE, OR TERMINATION FOR CAUSE

[A.A.C. R18-2-306(A)(8)(c) and 321(A)]

A. The permit may be revised, reopened, revoked and reissued, or terminated for cause. The filing of a request by the Permittee for a permit revision, revocation and reissuance, or termination; or of a notification of planned changes or anticipated noncompliance does not stay any permit condition.

B. The permit shall be reopened and revised under any of the following circumstances:

1. Additional applicable requirements under the Act become applicable to the Class I source. Such reopening shall only occur if there are three or more years remaining in the permit term. The reopening shall be completed not later than 18 months after promulgation of the applicable requirement. No such reopening is required if the

effective date of the requirement is later than the date on which the permit is due to expire, unless the original permit or any of its terms and conditions has been extended pursuant to R18-2-322(B). Any permit revision required pursuant to this subparagraph shall comply with provisions in R18-2-322 for permit renewal and shall reset the five year permit term.

2. Additional requirements, including excess emissions requirements, become applicable to an affected source under the acid rain program. Upon approval by the Administrator, excess emissions offset plans shall be deemed to be incorporated into the Class I permit.

3. The Director or the Administrator determines that the permit contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of the permit.

4. The Director or the Administrator determines that the permit needs to be revised or revoked to assure compliance with the applicable requirements.

C. Proceedings to reopen and issue a permit, including appeal of any final action relating to a permit reopening, shall follow the same procedures as apply to initial permit issuance and shall, except for reopenings under Paragraph III(B)(1) above, affect only those parts of the permit for which cause to reopen exists. Such reopenings shall be made as expeditiously as practicable. Permit reopenings for reasons other than those stated in Paragraph III(B)(1) of this Attachment shall not result in a resetting of the five year permit term.

IV. POSTING OF PERMIT [A.A.C. R18-2-315]

A. The Permittee shall post this permit, or a certificate of permit issuance where the facility is located in such a manner as to be clearly visible and accessible. All equipment covered by the permit shall be clearly marked with one of the following:

1. Current permit number.
2. Serial number or other equipment number that is also listed in the permit to identify that piece of equipment.

B. A copy of the complete permit shall be kept on the site.

V. FEE PAYMENT [A.A.C. R18-2-326 and 306)(A)(9)]

The Permittee shall pay fees to the Director pursuant to A.R.S. § 49-426(E) and A.A.C.

R18-2-326.

VI. ANNUAL EMISSIONS INVENTORY QUESTIONNAIRE [A.A.C. R18-2-327]

A. The Permittee shall complete and submit to the Director an annual emissions inventory questionnaire. The questionnaire is due by March 31 or ninety days after the Director makes the inventory form available each year, whichever occurs later, and shall include emission information for the previous calendar year.

B. The questionnaire shall be on a form provided by the Director and shall include the information required by A.A.C. R18-2-327.

VII. COMPLIANCE CERTIFICATION [A.A.C. R18-2-309(2)(a), -309(2)(c), -309(2)(d), -309(5)(d)]

A. The Permittee shall submit a compliance certification to the Director twice each year, which describes the compliance status of the source with respect to each permit condition. The first certification shall be submitted no later than May 1st, and shall report the compliance status of the source during the period between September 16th of the previous year, and March 15th of the current year. The second certification shall be submitted no later than November 1st, and shall report the compliance status of the source during the period between March 16th and September 15th of the current year.

The compliance certifications shall include the following:

1. Identification of each term or condition of the permit that is the basis of the certification;

2. Identification of the methods or other means used by the Permittee for determining the compliance status with each term and condition during the certification period, and whether the methods or means provide continuous or intermittent data;

3. The status of compliance with the terms and conditions of this permit for the period covered by the certification, based on the methods or means designated in Paragraph VII(A)(2) above. The certifications shall identify each deviation and take it into account for consideration in the compliance certification;

4. For emission units subject to 40 CFR part 64, the certification shall also identify as possible exceptions to compliance any period during which compliance is required and in which an excursion or exccedance defined under 40 CFR Part 64 occurred;

5. All instances of deviations from permit requirements reported pursuant to Part XII(B) of this Attachment; and

6. Other facts that the Director may require to determine the compliance status of the source;

B. A copy of all compliance certifications shall also be submitted to the EPA Administrator.

C. If any outstanding compliance schedule exists, a progress report shall be submitted with the semi-annual compliance certifications required in Part VII(A) above.

VIII. CERTIFICATION OF TRUTH, ACCURACY AND COMPLETENESS

[A.A.C. R18-2-309(3)]

Any document required to be submitted by this permit, including reports, shall contain a certification by a responsible official of truth, accuracy, and completeness. This certification and any other certification required under this part shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

IX. INSPECTION AND ENTRY

[A.A.C. R18-2-309(4)]

The Permittee shall allow the Director or the authorized representative of the Director upon presentation of proper credentials to:

A. Enter upon the Permittee's premises where a source is located or emissions-related activity is conducted, or where records are required to be kept under the conditions of the permit;

B. Have access to and copy, at reasonable times, any records that are required to be kept under the conditions of the permit;

C. Inspect, at reasonable times, any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit;

D. Sample or monitor, at reasonable times, substances or parameters for the purpose of assuring compliance with the permit or other applicable requirements; and

E. Record any inspection by use of written, electronic, magnetic and photographic media.

X. PERMIT REVISION PURSUANT TO FEDERAL HAZARDOUS AIR POLLUTANT STANDARD

If this source becomes subject to a standard promulgated by the Administrator pursuant to

section 112(d) of the Act, then the Permittee shall, within twelve months of the date on which the standard is promulgated, submit an application for a permit revision demonstrating how the source will comply with the standard. [A.A.C. R18-2-304(C)]

XI. ACCIDENTAL RELEASE PROGRAM

If this source becomes subject to the provisions of 40 CFR Part 68, then the Permittee shall comply with these provisions according to the timeline specified in 40 CFR Part 68. [40 CFR 68]

XII. EXCESS EMISSIONS, PERMIT DEVIATIONS, AND EMERGENCY REPORTING

A. Excess Emissions Reporting [A.A.C. R18-2-310.01(A) and -310.01(B)]

1. Excess emissions shall be reported as follows:

   a. The Permittee shall report to the Director any emissions in excess of the limits established by this permit. The report shall be in two parts as specified below:

      1. Notification by telephone or facsimile within 24 hours of the time when the Permittee first learned of the occurrence of excess emissions including all available information from Sub-Paragraph XII(A)(1)(b) of this Attachment.

      2. Detailed written notification within 72 hours of the notification pursuant to Provision XII(A)(1)(a)((1)) of this Attachment.

   b. The report shall contain the following information:

      1. Identity of each stack or other emission point where the excess emissions occurred.

      2. Magnitude of the excess emissions expressed in the units of the applicable emission limitation and the operating data and calculations used in determining the magnitude of the excess emissions.

      3. Date, time and duration or expected duration of the excess emissions.

      4. Identity of the equipment from which the excess emissions emanated.

      5. Nature and cause of such emissions.

      6. If the excess emissions were the result of a malfunction, steps taken to remedy the malfunction and the steps taken or planned to prevent the recur-

rence of such malfunctions.

7. Steps that were or are being taken to limit the excess emissions.

8. If the excess emissions resulted from startup or malfunction, the report shall contain a list of the steps taken to comply with the permit procedures.

2. In the case of continuous or recurring excess emissions, the notification requirements of Part XII(A) shall be satisfied if the source provides the required notification after excess emissions are first detected and includes in such notification an estimate of the time the excess emissions will continue. Excess emissions occurring after the estimated time period or changes in the nature of the emissions as originally reported shall require additional notification pursuant to Paragraph XII(A)(1) of this Attachment.

B. Permit Deviations Reporting [A.A.C. R18-2-306(A)(5)]

1. The Permittee shall promptly report deviations from permit requirements, including those attributable to upset conditions as defined in the permit, the probable cause of such deviations, and any corrective actions or preventive measures taken. Prompt reporting shall mean that the report was submitted to the Director by certified mail, facsimile, or hand delivery within two working days of the time the deviation occurred.

2. All instances of deviations from permit requirements shall be clearly identified in the required semiannual monitoring report specified in Part I(B) of Attachment "B" and shall be certified by the responsible official.

C. Emergency Provision [A.A.C. R18-2-306(E)]

1. An "emergency" means any situation arising from sudden and reasonable unforeseeable events beyond the control of the source, including acts of God, that require immediate corrective action to restore normal operation, and that causes the source to exceed a technology-based emission limitation under the permit, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error.

2. An emergency constitutes an affirmative defense to an action brought for noncompliance with such technology-based emission limitations if Provision XII(C)(3) is met.

3. The affirmative defense of emergency shall be demonstrated through properly signed, contemporaneous operating logs, or other relevant evidence that:

   a. An emergency occurred and that the Permittee can identify the cause(s) of the emergency;

   b. The permitted facility was being properly operated at the time;

   c. During the period of the emergency, the Permittee took all reasonable steps to minimize levels of emissions that exceeded the emissions standards or other requirements in the permit; and

   d. The Permittee submitted notice of the emergency to the Director by certified mail, facsimile, or hand delivery within two working days of the time when emission limitations were exceeded due to the emergency. This notice shall contain a description of the emergency, any steps taken to mitigate emissions, and corrective action taken.

4. In any enforcement proceeding, the Permittee seeking to establish the occurrence of an emergency has the burden of proof.

5. This provision is in addition to any emergency or upset provision contained in any applicable requirement.

D. Affirmative Defenses for Excess Emissions Due to Malfunctions, Startup, and Shutdown

[A.A.C. R18-2-310]

1. Applicability

   This rule establishes affirmative defenses for certain emissions in excess of an emission standard or limitation and applies to all emission standards or limitations except for standards or limitations:

   a. Promulgated pursuant to Sections 111 or 112 of the Act;

   b. Promulgated pursuant to Titles IV or VI of the Clean Air Act;

   c. Contained in any Prevention of Significant Deterioration (PSD) or New Source Review (NSR) permit issued by the U.S. EPA;

   d. Contained in A.A.C. R18-2-715(F); or

e. Included in a permit to meet the requirements of A.A.C. R18-2-406(A)(5).

2. Affirmative Defense for Malfunctions

Emissions in excess of an applicable emission limitation due to malfunction shall constitute a violation. When emissions in excess of an applicable emission limitation are due to a malfunction, the Permittee has an affirmative defense to a civil or administrative enforcement proceeding based on that violation, other than a judicial action seeking injunctive relief, if the Permittee has complied with the reporting requirements of A.A.C. R18-2-310.01 and has demonstrated all of the following:

a. The excess emissions resulted from a sudden and unavoidable breakdown of process equipment or air pollution control equipment beyond the reasonable control of the Permittee;

b. The air pollution control equipment, process equipment, or processes were at all times maintained and operated in a manner consistent with good practice for minimizing emissions;

c. If repairs were required, the repairs were made in an expeditious fashion when the applicable emission limitations were being exceeded. Off-shift labor and overtime were utilized where practicable to ensure that the repairs were made as expeditiously as possible. If off-shift labor and overtime were not utilized, the Permittee satisfactorily demonstrated that the measures were impracticable;

d. The amount and duration of the excess emissions (including any bypass operation) were minimized to the maximum extent practicable during periods of such emissions;

e. All reasonable steps were taken to minimize the impact of the excess emissions on ambient air quality;

f. The excess emissions were not part of a recurring pattern indicative of inadequate design, operation, or maintenance;

g. During the period of excess emissions there were no exceedances of the relevant ambient air quality standards established in Title 18, Chapter 2, Article 2 of the Arizona Administrative Code that could be attributed to the emitting source;

h. The excess emissions did not stem from any activity or event that could have been foreseen and avoided, or planned, and could not have been avoided by

better operations and maintenance practices;

i. All emissions monitoring systems were kept in operation if at all practicable; and

j. The Permittee's actions in response to the excess emissions were documented by contemporaneous records.

3. Affirmative Defense for Startup and Shutdown

a. Except as provided in Sub-Paragraph XII(E)(3)(b) below, and unless otherwise provided for in the applicable requirement, emissions in excess of an applicable emission limitation due to startup and shutdown shall constitute a violation. When emissions in excess of an applicable emission limitation are due to startup and shutdown, the Permittee has an affirmative defense to a civil or administrative enforcement proceeding based on that violation, other than a judicial action seeking injunctive relief, if the Permittee has complied with the reporting requirements of A.A.C. R18-2-310.01 and has demonstrated all of the following:

1. The excess emissions could not have been prevented through careful and prudent planning and design;

2. If the excess emissions were the result of a bypass of control equipment, the bypass was unavoidable to prevent loss of life, personal injury, or severe damage to air pollution control equipment, production equipment, or other property;

3. The air pollution control equipment, process equipment, or processes were at all times maintained and operated in a manner consistent with good practice for minimizing emissions;

4. The amount and duration of the excess emissions (including any bypass operation) were minimized to the maximum extent practicable during periods of such emissions;

5. All reasonable steps were taken to minimize the impact of the excess emissions on ambient air quality;

6. During the period of excess emissions there were no exceedances of the relevant ambient air quality standards established in Title 18, Chapter 2, Article 2 of the Arizona Administrative Code that could be attributed to the

emitting source;

7. All emissions monitoring systems were kept in operation if at all practicable; and

8. The Permittee's actions in response to the excess emissions were documented by contemporaneous records.

b. If excess emissions occur due to a malfunction during routine startup and shutdown, then those instances shall be treated as other malfunctions subject to Paragraph XII(D)(2) above.

4. Affirmative Defense for Malfunctions During Scheduled Maintenance

If excess emissions occur due to a malfunction during scheduled maintenance, then those instances will be treated as other malfunctions subject to Paragraph XII(D)(2) above.

5. Demonstration of Reasonable and Practicable Measures

For an affirmative defense under Paragraphs XII(D)(2) or XII(D)(3) above, the Permittee shall demonstrate, through submission of the data and information required by this Part XII(D) and A.A.C. R18-2-310.01, that all reasonable and practicable measures within the Permittee's control were implemented to prevent the occurrence of the excess emissions.

E. For any excess emission or permit deviation that cannot be corrected within 72 hours, the Permittee is required to submit a compliance schedule to the Director within 21 days of such occurrence. The compliance schedule shall include a schedule of remedial measures, including an enforceable sequence of actions with milestones, leading to compliance with the permit terms or conditions that have been violated. [A.R.S. 49-426(I)(5)]

XIII. RECORD KEEPING REQUIREMENTS [A.A.C. R18-2-306(A)(4)]

A. The Permittee shall keep records of all required monitoring information including, but not limited to, the following:

1. The date, place as defined in the permit, and time of sampling or measurements;

2. The date(s) analyses were performed;

3. The name of the company or entity that performed the analyses;

4. A description of the analytical techniques or methods used;

5. The results of such analyses; and

6. The operating conditions as existing at the time of sampling or measurement.

B. The Permittee shall retain records of all required monitoring data and support information for a period of at least 5 years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records and all original strip-chart recordings or other data recordings for continuous monitoring instrumentation, and copies of all reports required by the permit.

XIV. REPORTING REQUIREMENTS [A.A.C. R18-2-306(A)(5)(a)]

The Permittee shall submit the following reports:

A. Compliance certifications in accordance with Section VII of Attachment "A".

B. Reports of excess emissions, permit deviations, and emergencies in accordance with Section XII Attachment "A".

C. Other reports required by Attachment "B" and Attachment "D".

XV. DUTY TO PROVIDE INFORMATION [A.A.C. R18-2-304(G) and 306(A)(8)(e)]

A. The Permittee shall furnish to the Director, within a reasonable time, any information that the Director may request in writing to determine whether cause exists for revising, revoking and reissuing, or terminating the permit or to determine compliance with the permit. Upon request, the Permittee shall also furnish to the Director copies of records required to be kept by the permit. For information claimed to be confidential, the Permittee shall furnish an additional copy of such records directly to the Administrator along with a claim of confidentiality.

B. If the Permittee has failed to submit any relevant facts or if the Permittee has submitted incorrect information in the permit application, the Permittee shall, upon becoming aware of such failure or incorrect submittal, promptly submit such supplementary facts or corrected information.

XVI. PERMIT AMENDMENT OR REVISION [A.A.C. R18-2-318, 319 and 320]

The Permittee shall apply for a permit amendment or revision for changes to the facility

which do not qualify for a facility change without revision under Section XVII, as follows:

A. Administrative Permit Amendment (A.A.C. R18-2-318);

B. Minor Permit Revision (A.A.C. R18-2-319);

C. Significant Permit Revision (A.A.C. R18-2-320).

The applicability and requirements for such action are defined in the above referenced regulations.

XVII. FACILITY CHANGE WITHOUT PERMIT REVISION [A.A.C. R18-2-317]

A. The Permittee may make changes at the permitted source without a permit revision if all of the following apply:

1. The changes are not modifications under any provision of Title I of the Act or under A.R.S. § 49-401.01(17).

2. The changes do not exceed the emissions allowable under the permit whether expressed therein as a rate of emissions or in terms of total emissions.

3. The changes do not violate any applicable requirements or trigger any additional applicable requirements.

4. The changes satisfy all requirements for a minor permit revision under R18-2-319(A).

5. The changes do not contravene federally enforceable permit terms and conditions that are monitoring (including test methods), recordkeeping, reporting, or compliance certification requirements.

B. The substitution of an item of process or pollution control equipment for an identical or substantially similar item of process or pollution control equipment shall qualify as a change that does not require a permit revision, if it meets all of the requirements of Parts (A) and (C) of this Section.

C. For each such change under Parts (A) and (B) of this Section, a written notice by certified mail or hand delivery shall be received by the Director and, for Class I permits, the Administrator, a minimum of 7 working days in advance of the change. Notifications of changes associated with emergency conditions, such as malfunctions necessitating the replacement of equipment, may be provided less than 7 working days

in advance of the change but must be provided as far in advance of the change as possible or, if advance notification is not practicable, as soon after the change as possible. Each notification shall include:

1. When the proposed change will occur.

2. A description of each such change.

3. Any change in emissions of regulated air pollutants.

4. The pollutants emitted subject to the emissions trade, if any.

5. The provisions in the implementation plan that provide for the emissions trade with which the source will comply and any other information as may be required by the provisions in the implementation plan authorizing the trade.

6. If the emissions trading provisions of the implementation plan are invoked, then the permit requirements with which the source will comply.

7. Any permit term or condition that is no longer applicable as a result of the change.

XVIII. PERFORMANCE TESTING REQUIREMENTS [A.A.C. R18-2-312]

A. The Permittee shall conduct performance tests as specified in the permit and at such other times as may be required by the Director.

B. Operational Conditions During Performance Testing

Performance tests shall be conducted during operation at no less than 90% of the maximum possible capacity of each unit under representative operational conditions unless other conditions are required by the applicable test method or in this permit. With prior written approval from the Director, testing may be performed at a lower rate. Operations during start-up, shutdown, and malfunction (as defined in A.A.C. R18-2-101) shall not constitute representative operational conditions unless otherwise specified in the applicable standard.

C. Performance tests shall be conducted and data reduced in accordance with the test method and procedures contained in the Arizona Testing Manual unless modified by the Director pursuant to A.A.C. R18-2-312.B.

D. Performance Test Plan

At least 14 calendar days prior to performing a test, the owner or operator shall submit a test plan to the Director, in accordance with the Arizona Testing Manual. This test plan must include among others identified in the Arizona Testing Manual the following:

1. test duration;
2. test location(s);
3. test method(s); and
4. source operation and other parameters that may affect test results.

E. Stack Sampling Facilities

The Permittee shall provide or cause to be provided, performance testing facilities as follows:

1. Sampling ports adequate for test methods applicable to the facility;
2. Safe sampling platforms;
3. Safe access to sampling platforms; and
4. Utilities for sampling and testing equipment.

F. Interpretation of Final Results

Each performance test shall consist of three separate runs using the required test method. Each run shall be conducted in accordance with the applicable standard and test method. For the purpose of determining compliance with an applicable standard, the arithmetic means of results of the three runs shall apply. If a sample is accidentally lost or conditions occur which are not under the Permittee's control and which may invalidate the run, compliance may, upon the Director's approval, be determined using the arithmetic mean of the other two runs. If the Director, or Director’s designee, is present, tests may only be stopped with the Director’s or such designee’s approval. If the Director or the Director's designee is not present, tests may only be stopped for good cause. Good cause includes, forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions or other conditions beyond the Permittee's control. Termination of any test without good cause after the first run is commenced shall constitute a failure of the test. Supporting documentation which demonstrates good cause must be submitted.

G. Report of Final Test Results

A written report of the results of all performance tests shall be submitted to the Director within 30 days after the test is performed. The report shall be submitted in accordance with the Arizona Testing Manual and A.A.C. R18-2-312.A.

XIX. PROPERTY RIGHTS [A.A.C. R18-2-306(A)(8)(d)]

This permit does not convey any property rights of any sort, or any exclusive privilege.

XX. SEVERABILITY CLAUSE [A.A.C. R18-2-306(A)(7)]

The provisions of this permit are severable. In the event of a challenge to any portion of this permit, or if any portion of this permit is held invalid, the remaining permit conditions remain valid and in force.

XXI. PERMIT SHIELD [A.A.C. R18-2-325]

Compliance with the conditions of this permit shall be deemed compliance with the applicable requirements identified in Attachment "B" of this permit. The permit shield shall not apply to any changes made pursuant to Part XVI(B) and Section XVII of this Attachment.

ATTACHMENT "B": SPECIFIC PROVISIONS

Air Quality Control Permit No. 1000046
For
Phelps Dodge Miami, Inc.

I. General Requirements

A. Within 180 days of issuance of this permit the owner or operator shall have on site or on call a person that is certified in EPA Reference Method 9.

[A.A.C. R18-2-306.A.3]

B. At the time the compliance certifications required by Section VII of Attachment "A" are submitted, the Permittee shall submit reports of all monitoring activities required by this Attachment performed in the same six month period as applies to the compliance certification period. [A.A.C. R18-2-306.A.5.a]

C. At the time the monthly reports required by Section X.C.8.b of this attachment are submitted, Permittee shall also submit reports of sulfur dioxide emissions (stack and fugitive) in tons per year for the preceding twelve months to demonstrate compliance with the limits specified in Attachment C. [A.A.C. R18-2-306.A.5.b]

II. Feed Limitations

A. Throughput Restrictions

1. The maximum feed rate of new metal bearing material shall be limited to 850, 000 dry tons per year to the furnaces (Isa and Electric), calculated as a twelve month rolling sum.

[Condition VIII.A of Attachment B of Installation Permit #1232]

2. The amount of recyclable hazardous wastes used as feedstock shall be limited to 25, 000 dry tons per year, calculated as a twelve month rolling sum. These wastes shall include those materials which are listed as F006 hazardous waste in 40 CFR 261 or characterized as hazardous wastes for the characteristics of corrosivity (D002), copper bearing powders (D003), Arsenic (D004), Barium (D005), Cadmium (D006), Chromium (D007), Lead (D008), Mercury (D009), Selenium (D010), and Silver (DO11).

[Condition VIII.B of Attachment B of Installation Permit #1232]
[State Only Requirement]

3. The feed input of each trace metal contained in the recyclable hazardous waste feedstock shall not exceed the ton per year amount set forth in the following table:

Element	Limit in Hazardous Waste Feedstock (tpy)
S	1000
Sb	10
As	5
Ba	50
Be	1
Cd	40
Cr	400
Pb	200
Hg	1
Ni	400
Se	1
Ag	10
Tl	1

[Condition II of Administrative Amendment #1000382 to Installation Permit #1232]
[State Only Requirement]

B. Monitoring, Recordkeeping, and Reporting Requirements

1. Permittee shall log and maintain daily records of the amounts of new metal bearing material and recyclable hazardous waste fed to the smelter. At the end of every month, Permittee shall update monthly and rolling twelve month totals of new metal bearing material feed and recyclable hazardous waste feedstock. [A.A.C. R18-2-306.A.3.c]
[Condition relating to hazardous waste feedstock is a State Only Requirement]

2. Permittee shall report on a monthly basis, the totals of new metal bearing material feed and recyclable hazardous waste feedstock for the relevant 12-month rolling periods. As part of the monthly report, Permittee shall include records showing that specific 40 CFR 261 hazardous waste category of such recyclable materials (i.e, hazardous waste manifests) and documentation of the trace element feed input levels.

[Conditions VI.B. 2 and 3 of Att B of Installation Permit #1232]
[Condition relating to hazardous waste feedstock is a State Only Requirement]

C. Permit Shield

Compliance with the conditions of this part shall be deemed compliance with Conditions VI.B.2, VI.B.3, VIII.A, and VIII.B of Attachment B of Installation Permit #1232 and Condition II of Administrative Amendment #1000382 to Installation Permit #1232. [A.A.C. R18-2-325]

III. Materials Handling and Bedding Plant

A. Emission Limitations/Standards

1. Permittee shall not exceed the emission rate limits specified in Attachment C for particulate matter from the flux bin, revert bin, coal bin and concentrate bins.
[Condition II.E of Att B of Installation Permit #1232]

2. Permittee shall not cause, allow or permit to be emitted into the atmosphere, any plume or effluent which exceeds 40% opacity as measured by EPA Reference Method 9. [A.A.C. R18-2-702.B]

B. Air Pollution Control Requirements

1. Permittee shall maintain and operate the baghouses associated with flux, coal, revert, and concentrate bins for minimizing particulate matter emissions.

2. Permittee shall maintain and operate the water sprays associated with flux, coal, and revert bins for minimizing particulate matter emissions.
[Condition VII.A of Att B of Installation Permit #1232 & A.A.C. R18-2-331]
[Material permit conditions are identified by underline]

C. Monitoring, Recordkeeping, and Reporting Requirements

1. Biweekly monitoring for point sources

a. Within 180 days of issuance of this permit, Permittee shall conduct certified Method 9 performance tests in accordance with Section XVIII of Attachment A for the stacks associated with the Materials Handling and Bedding Plant, while operating at normal representative working conditions, to establish a baseline opacity level for each of the stacks. Within 30 days of establishing the baseline opacity, the Permittee shall report the results to the Director.

b. A certified Method 9 observer shall conduct a bi-weekly (once in two weeks) visual survey of visible emissions from the stacks associated with the material handling and bedding plant when they are in operation. Permittee shall keep a record of the name of the observer, the date on which the observation was made, and the results of the observation.

c. If the observer sees a plume that on an instantaneous basis appears to exceed the baseline opacity level, then the observer shall, if practicable, take a six-minute Method 9 observation of the plume.

d. If the six-minute opacity of the plume is less than the baseline opacity level, the observer shall make a record of the following:

1. Name of the observer, location, date, and time of the observation; and
2. The results of the Method 9 observation.

e. If the six-minute opacity of the plume exceeds the baseline opacity level but is less than the applicable opacity standard, Permittee shall adjust or repair the controls or equipment to reduce opacity to or below the baseline opacity level. The observer shall make a record of the following:

1. Name of the observer, location, date, and time of the observation;
2. The results of the Method 9 observation;
3. Date and time when corrective action was taken; and
4. Type of corrective action taken.

f. If the six-minute opacity of the plume exceeds the applicable opacity standard, then the Permittee shall do the following:

1. Adjust or repair the controls or equipment to reduce opacity to or below the baseline level; and
2. Report it as an excess emission for opacity.

g. If corrective actions fail to reduce opacity to or below the baseline level, the Permittee shall adopt the following course of action :

1. document all corrective action; and
2. initiate procedures to re-establish the baseline within forty eight hours in accordancewith subsection (h).

h. If necessitated by the results of the bi-weekly monitoring, Permittee may reestablish the baseline opacity level(s). Reestablishment of the baseline(s) shall be performed utilizing the same procedures used in setting up the initial baseline level(s). Within 30 days of re-establishing the baseline opacity, the Permittee shall report the results to the Director. The report shall also contain a description of the need for re-establishing the baseline(s).

[A.A.C. R18-2-306.A.3.c]

2. Bi-weekly monitoring for fugitive emissions

   a. A certified Method 9 observer shall conduct a bi-weekly (once in two weeks) visual survey of fugitive emissions from the materials handling and bedding plant when they are in operation.

   b. If the observer, during the visual survey, does not see any plume from any fugitive source that on an instantaneous basis appears to exceed the applicable opacity standard, then the observer shall keep a record of the name of the observer, the date on which the observation was made, and the results of the observation.

   c. If the observer sees a plume from a fugitive source that on an instantaneous basis appears to exceed the applicable opacity standard, then the observer shall if practicable take a six-minute Method 9 observation of the plume.

   d. If the six-minute opacity of the plume exceeds the applicable opacity standard, Permittee shall do the following:

      1. Adjust or repair the controls or equipment to reduce opacity to below the opacity standard;
      2. Report it as excess emissions.

   e. If the six-minute opacity of the plume is less than the applicable opacity standard, the observer shall make a record of the following:

      1. Name of the observer, location, date, and time of the observation; and
      2. The results of the Method 9 observation.

[A.A.C. R18-2-306.A.3.c]

D. Performance Testing Requirements

Permittee shall conduct or cause to be conducted, performance tests on two representative stacks from the concentrate, flux, revert, and coal bins in the first year of the permit term to show compliance with the emission limits specified in Attachment C. EPA Reference Method 5 from 40 CFR 60 shall be used to determine the emissions of PM. [A.A.C. R18-2-312 and A.A.C. R18-2-306.A.3.c]

E. Permit Shield

Compliance with the conditions of this part shall be deemed compliance with Conditions II.E and VII.A of Attachment B of Installation Permit #1232, and A.A.C. R18-2-702.B. [A.A.C. R18-2-325]

IV. Process Gases from the Isasmelt Furnace, Electric Furnace, and Converters (Vented from the Acid Plant Tail Stack)

A. Particulate Matter, Opacity, and Lead

1. Emission Limitations/Standards

a. Permittee shall not exceed the emission rate limit specified for the acid plant tail gas stack in Attachment C for particulate matter.

[Condition II.E of Att B of Installation Permit #1232]

b. Permittee shall not cause to be discharged from the acid plant tail stack, any visible emissions which exhibit greater than 20 percent opacity.

[40 CFR 60.164(b)]

c. Permittee shall not exceed the emission limit for Lead specified in Attachment C.

[Condition I.A of Minor Revision #1232R1 to Installation Permit1232]

2. Monitoring, Recordkeeping, and Reporting Requirements

Biweekly monitoring for point sources

a. Within 180 days of issuance of this permit, Permittee shall conduct certified Method 9 performance tests in accordance with Section XVIII of Attachment A for the acid plant tail stack, while operating at normal representative working conditions, to establish a baseline opacity level. Within 30 days of establishing the baseline opacity, the Permittee shall report the results to the Director.

b. A certified Method 9 observer shall conduct a bi-weekly (once in two weeks) visual survey of visible emissions from the acid plant tail stack when they are in operation. Permittee shall keep a record of the name of the observer, the date on which the observation was made, and the results of the observation.

c. If the observer sees a plume that on an instantaneous basis appears to exceed the baseline opacity level, then the observer shall, if icable, take a six-minute Method 9 observation of the plume.

d. If the six-minute opacity of the plume is less than the baseline opacity level, the observer shall make a record of the following:

1. Name of the observer, location, date, and time of the observation; and

2. The results of the Method 9 observation.

e. If the six-minute opacity of the plume exceeds the baseline opacity level but is less than the applicable opacity standard, Permittee shall adjust or repair the controls or equipment to reduce opacity to or below the baseline opacity level. The observer shall make a record of the following:

1. Name of the observer, location, date, and time of the observation;
2. The results of the Method 9 observation;
3. Date and time when corrective action was taken; and
4. Type of corrective action taken.

f. If the six-minute opacity of the plume exceeds the applicable opacity standard, then the Permittee shall do the following:

1. Adjust or repair the controls or equipment to reduce opacity to or below the baseline level; and
2. Report it as an excess emission for opacity.

g. If corrective actions fail to reduce opacity to or below the baseline level, the Permittee shall adopt the following course of action :

1. document all corrective action; and
2. initiate procedures to re-establish the baseline within forty eight hours in accordance with subsection (h).

h. If necessitated by the results of the bi-weekly monitoring, Permittee may reestablish the baseline opacity level(s). Reestablishment of the baseline(s) shall be performed utilizing the same procedures used in setting up the initial baseline level(s). Within 30 days of re-establishing the baseline opacity, the Permittee shall report the results to the Director. The report shall also contain a description of the need for re-establishing the baseline(s).

[A.A.C. R18-2-306.A.3.c]

3. Performance Testing Requirements

a. Permittee shall conduct or cause to be conducted, semi-annual performance tests on the acid plant tail stack for Particulate Matter (PM) to show compliance with the emission limits specified in section IV.A.1. Arizona Method A1 shall be used to determine the emissions of PM.

b. Performance tests shall be conducted on a semi-annual basis on the acid plant tail stack for emissions of Lead using EPA Reference Method 29 to show

compliance with the emission limit specified in Attachment C.

c. Permittee shall conduct an annual performance test for opacity on the acid plant tail stack. The performance test shall be conducted in accordance with Reference Method 9 in 40 CFR 60, Appendix A.

[A.A.C. R18-2-312, A.A.C. R18-2-306.A.3.c, Condition Vof Att B of Significant Revision #1000340 to Installation Permit #1232]

4. Permit Shield

Compliance with the conditions of this part shall be deemed compliance with Condition II.E of Att B of Installation Permit #1232, Condition I.A of Minor Revision #1232R1 to Installation Permit #1232, 40 CFR 60.164(b), and Condition V of Att B of Significant Revision #1000340 to Installation Permit #1232.

[A.A.C. R18-2-325]

B. Sulfur Dioxide

1. Emission Limitations/Standards

a. Permittee shall not exceed the emission limit for sulfur dioxide specified in Attachment C for the acid plant tail stack.

[Condition II.E of Att B of Installation Permit #1232]

b. Permittee shall not cause to be discharged into the atmosphere from the acid plant any gases which contain sulfur dioxide in excess of 0.065 percent by volume. [40 CFR 60.163(a)]

2. Air Pollution Control Requirements

a. At all times, including periods of startup, shutdown, and malfunction, Permittee shall, to the extent practicable, maintain and operate the acid plant in a manner consistent with good air pollution control practice for minimizing sulfur dioxide emissions from the process gases associated with the Isasmelt furnace, electric furnace, and the converters. [Condition VII.C of Att B of Installation Permit #1232, 40 CFR 60.11(d), and A.A.C. R18-2-331]

[Material permit conditions are identified by underline]

b. When in use, Permittee shall, to the extent practicable, maintain and operate the chemical scrubber in a manner consistent with good air pollution control practice for minimizing sulfur dioxide emissions from the process gases associated with the Isasmelt furnace, electric furnace, and the converters.

[Condition VII.D of Att B of Installation Permit #1232, 40 CFR 60.11(d), and A.A.C. R18-2-331]

[Material permit conditions are identified by underline]

3. Monitoring, Recordkeeping, and Reporting Requirements

   a. Permittee shall continue to operate Continuous Emission Monitoring Systems (CEMS) to monitor and record sulfur dioxide emissions from the acid plant. The span of this system shall be set at a sulfur dioxide concentration of 0.2 percent by volume. [40 CFR 60.165(b)(2)]

   b. Six-hour average sulfur dioxide concentrations shall be calculated and recorded daily for the four consecutive 6-hour periods of each operating day. Each six-hour average shall be determined as the arithmetic mean of the appropriate six contiguous one-hour average sulfur dioxide concentrations provided by the continuous monitoring system required in subsection a. [40 CFR 60.165(c)]

   c. For reporting purposes, periods of excess emissions that shall be reported are defined as all six-hour periods during which the average emissions of sulfur dioxide, as measured by the continuous monitoring system , exceed the standard (0.065 percent by volume). The Administrator will not consider emissions in excess of the level of the standard for less than or equal to 1.5 percent of the six-hour period during the quarter as indicative of a potential violation of 60.11(d), provided the acid plant is maintained and operated in a manner consistent with good air pollution control practice for minimizing emissions during these periods. Emissions in excess of the level of the standard during periods of startup, shutdown, and malfunction are not to be included within the 1.5 percent. [40 CFR 60.165(d)(2)]

   d. Permittee shall cause to be conducted, quality assurance procedures on the CEM in accordance with the methods specified in 40 CFR 60, Appendix F or an equivalent QA/QC plan approved by the Director.

[Condition V.C of Att B of Installation Permit #1232, A.A.C. R18-2-331& A.A.C R18-2-312.H.3]
[Material permit conditions are identified by underline]

4. Permit Shield

   Compliance with the conditions of this part shall be deemed compliance with Conditions II.E, V.C, VII.C, and VII.D of Att B of Installation Permit #1232, 40 CFR 60.163(a), 40 CFR 60.165(b)(2), 40 CFR 60.165(c), and 40 CFR 60.165(d)(2). [A.A.C. R18-2-325]

C. Nitrogen Oxides

1. Emission Limitations/Standards

   Permittee shall limit the nitrogen oxide emissions from the tailgas stack of the acid plant to not more than 425 tons/year. The average hourly nitrogen oxides emission rate shall be no greater than 97.5 pounds per hour.
   [Condition II.A.1 of Att B of Significant Revision #1000266 to Installation Permit #1232]

2. Monitoring, Recordkeeping, and Reporting Requirements

   a. At the end of every calender month, the monthly emissions of nitrogen oxides shall be calculated by multiplying the average hourly emission rate (determined from the most recent performance test) by the hours of operation of the acid plant during the calender month. The annual emissions shall be calculated as the rolling sum of that calender month and prior eleven (11) most recent months.
   [Condition II.A.2. of Att B of Significant Revision #1000266 to Installation Permit #1232]

   b. Permittee shall maintain records of the monthly hours of operation of the acid plant and the year-to-date total, i.e., the sum of the current month and the eleven (11) previous months.
   [Condition 1V.B.3 of Att B of Significant Revision #1000266 to Installation Permit #1232]

   c. Permittee shall maintain records of the monthly emissions of nitrogen oxides from the acid plant and the year-to-date total, i.e., the sum of the current month and the eleven (11) previous months.
   [Condition IV.B.2 of Att B of Significant Revision #1000266 to Installation Permit #1232]

3. Performance Testing Requirements

   Permittee shall conduct or cause to be conducted, semi-annual performance tests on the acid plant tail stack for nitrogen oxides to show compliance with the emission limits specified in subsection 1. EPA Reference Method 7E shall be used to determine the emissions of NO_X.
   [A.A.C. R18-2-312 and A.A.C. R18-2-306.A.3.c]

4. Permit Shield

   Compliance with the conditions of this part shall be deemed compliance with Conditions II.A.1, II.A.2, IV.B.2, and IV.B.3 of Att B of Significant Revision #1000266 to Installation Permit #1232. [A.A.C. R18-2-325]

V. Captured Fugitives from the Isasmelt Furnace Launder and the Electric Furnace (Vent

Fume Stack)

A. PM, Opacity, and Lead

1. Emission Limitations/Standards

a. Permittee shall not exceed the emission rate limit specified for the Vent Fume Stack in Attachment C for particulate matter.

[Condition II.E of Att B of Installation Permit #1232]

b. In any one hour period, the Permittee shall not cause, allow or permit the discharge of particulate matter into the atmosphere in excess of the amounts calculated by one of the following equations:

i. For process sources having a process weight rate of 60,000 pounds per hour (30 tons per hour) or less, the maximum allowable emissions shall be determined by the following equation:

$E = 4.1P^{0.67}$

where:
E = the maximum allowable particulate emissions rate in pounds-mass per hour.
P = the process weight rate in tons-mass per hour of all materials introduced into a process source, including fuels, where these contribute to pollution generated by the source.

ii. For process sources having a process weight rate greater than 60,000 pounds per hour (30 tons per hour), the maximum allowable emissions shall be determined by the following equation:

E = 55P0.11 - 40

where "E" and "P" are defined as indicated in Paragraph i of this subsection.

[A.A.C. R18-2-715.A]

c. Permittee shall not cause to be discharged into the atmosphere, any visible emissions which exhibit greater than 20 percent opacity.

[A.A.C. R18-2-715.D]

d. Permittee shall not exceed the emission limit for Lead specified in Attachment C for the vent fume stack.

[Condition II.F.2 of Att B of Installation Permit #1232]

2. Air Pollution Control Requirements

   Permittee shall maintain and operate the scrubber associated with the vent fume stack for minimizing particulate matter emissions.

   [Condition VII.B of Att B of Installation Permit #1232 and A.A.C. R18-2-331]
   [Material permit conditions are identified by underline]

3. Monitoring, Recordkeeping, and Reporting Requirements

   During performance testing and on a daily basis thereafter, measurements of the scrubber liquid flowrate shall be recorded. Reports of occurrences when measurements of the liquid flow rate differ by more than ±30 percent from the average determined during the most recent performance test shall be submitted with the semi-annual compliance certification. [A.A.C. R18-2-306.A.3.c]

4. Performance Testing Requirements

   a. Permittee shall conduct or cause to be conducted, semi-annual performance tests on the vent fume stack for Particulate Matter (PM) to show compliance with the emission limits specified in subsection 1.a and 1.b of this section. Arizona Method A1 shall be used to determine the emissions of PM.

   b. Performance tests shall be conducted on a semi-annual basis on the vent fume stack for emissions of Lead using EPA Reference Method 29 to show compliance with the emission limit specified in Attachment C.

   c. Permittee shall conduct an annual performance test for opacity on the vent fume stack. The performance test shall be conducted in accordance with Reference Method 9 in 40 CFR 60, Appendix A.

   [A.A.C. R18-2-312, A.A.C. R18-2-306.A.3.c,
   Condition V of Significant Revision #1000340 to Installation Permit #1232]

5. Compliance Plan Requirements

   a. Permittee shall comply with the timelines outlined in the following schedule to ensure that a sequence of enforceable actions with milestones, leading to a demonstration of compliance for the vent fume stack with the opacity limit specified in subsection 1.c of this section, is met.

March 15, 2002	Submit Report on Status of Evaluation of Control Options
July 15, 2002	Submit Report on Control Option Selected
December 15, 2002	Submit Permit Application

January 31, 2003 Complete Detailed Engineering
May 15, 2003 Commence Construction
April 15, 2004 Equipment Fully Operational
May 15, 2004 Schedule performance test to demonstrate compliance with 20% opacity limit

[A.A.C. R18-2-309.5.c.iii]

b. Permittee shall submit certified progress reports no less frequently than six months to report the following:

1. Dates for achieving the activities, milestones, or compliance required in the schedule of compliance and dates when such activities, milestones, or compliance were achieved; and

2. An explanation of why any dates in the schedule of compliance were not or will not be met, and any preventive or corrective measures taken.

[A.A.C. R18-2-309.5.d]

6. Permit Shield

Compliance with the conditions of this part shall be deemed compliance with Conditions II.E, II.F.2, and VII.B of Att B of Installation Permit #1232, 40 CFR 52.126(b)(1), and Condition V of Significant Revision #1000340 to Installation Permit #1232. [A.A.C. R18-2-325]

B. Sulfur Dioxide

1. Emission Limitations/Standards

a. Permittee shall not exceed the emission limit for sulfur dioxide specified in Attachment C for the vent fume stack

[Condition II.E of Att B of Installation Permit #1232]

2. Air Pollution Control Requirements

Permittee shall maintain and operate the scrubber associated with the vent fume stack for minimizing sulfur dioxide emissions.

[Condition VII.B of Att B of Installation Permit #1232 and A.A.C. R18-2-331]
[Material permit conditions are identified by underline]

3. Monitoring, Recordkeeping, and Reporting Requirements

a. Permittee shall continue to operate Continuous Emission Monitoring Systems (CEMS) to monitor and record sulfur dioxide emissions from the vent fume stack.

b. Permittee shall cause to be conducted, quality assurance procedures on the CEM in accordance with the methods specified in 40 CFR 60, Appendix F or an equivalent QA/QC plan approved by the Director.

[Condition V.C of Att B of Installation Permit #1232, A.A.C. R18-2-331& A.A.C R8-2-312.H.3]
[Material permit conditions are identified by underline]

4. Permit Shield

Compliance with the conditions of this part shall be deemed compliance with Conditions II.E, V.C, and VII.B. of Att B of Installation Permit #1232.

[A.A.C. R18-2-325]

VI. Smelter Fugitives

A. Opacity, Particulate Matter, and Lead

1. Emission Limitations/Standards

a. Permittee shall not cause, allow or permit to be emitted into the atmosphere, any plume or effluent which exceeds 40% opacity as measured by EPA Reference Method 9. [A.A.C. R18-2-702.B]

b. Permittee shall not exceed the emission limit for Lead specified in Attachment C for the smelter fugitives.

[Condition II.F.2 of Att B of Installation Permit #1232]

2. Monitoring, Recordkeeping, and Reporting Requirements

Bi-weekly monitoring for fugitive emissions

a. A certified Method 9 observer shall conduct a bi-weekly (once in two weeks) visual survey of fugitive emissions from the smelter complex when in operation.

b. If the observer, during the visual survey, does not see any plume from any fugitive source that on an instantaneous basis appears to exceed the applicable opacity standard, then the observer shall keep a record of the name of the observer, the date on which the observation was made, and the results of the observation.

c. If the observer sees a plume from a fugitive source that on an instantaneous basis appears to exceed the applicable opacity standard, then the observer shall if practicable take a six-minute Method 9 observation of the plume.

d. If the six-minute opacity of the plume exceeds the applicable opacity standard, Permittee shall do the following:

1. Adjust or repair the controls or equipment to reduce opacity to below the opacity standard;
2. Report it as excess emissions.

e. If the six-minute opacity of the plume is less than the applicable opacity standard, the observer shall make a record of the following:

1. Name of the observer, location, date, and time of the observation; and
2. The results of the Method 9 observation.

[A.A.C. R18-2-306.A.3.c]

3. Performance testing requirements

Permittee shall conduct an annual performance test for opacity on the smelter fugitives. The performance test shall be conducted in accordance with Reference Method 9 in 40 CFR 60, Appendix A. [A.A.C. R18-2-306.A.3.c]

4. Permit Shield

Compliance with the conditions of this part shall be deemed compliance with A.A.C. R18-2-702.B and Condition II.F.2 of Att B of Installation Permit #1232.

[A.A.C. R18-2-325]

B. Sulfur Dioxide

1. Emission Limitations/Standards

Permittee shall not exceed the overall emission limit for sulfur dioxide specified in Attachment C.

[Condition II.E of Att B of Installation Permit #1232]

2. Monitoring, Recordkeeping, and Reporting Requirements

As a means of determining smelter fugitive emissions, Permittee shall perform material balances for sulfur in accordance with the sulfur balance procedures

prescribed in Attachment D of this permit.
[Condition II.D of Att B of Installation Permit #1232]

3. Permit Shield

Compliance with the conditions of this part shall be deemed compliance with Conditions II.D and II.E of Att B of Installation Permit #1232.
[A.A.C. R18-2-325]

VII. Anode Furnace and Utility Vessels

Opacity

A. Emission Limitations/Standards

Permittee shall not cause, allow or permit to be emitted into the atmosphere, any plume or effluent which exceeds 40% opacity as measured by EPA Reference Method 9.
[A.A.C. R18-2-702.B]

B. Air Pollution Control Requirements

Permittee shall maintain and operate the steam injection system associated with each of the anode furnaces and utility vessels to minimize particulate matter emissions when natural gas is being used for reducing.
[A.A.C. R18-2-331]
[Material permit conditions are identified by underline]

C. Performance testing requirements

Permittee shall conduct an annual performance test for opacity on the anode furnaces and the utility vessels. The performance test shall be conducted in accordance with Reference Method 9 in 40 CFR 60, Appendix A. [A.A.C. R18-2-306.A.3.c]

D. Permit Shield

Compliance with the conditions of this part shall be deemed compliance with A.A.C. R18-2-702.B. [A.A.C. R18-2-325]

VIII. Fuel Burning Equipment

A. Electrolytic Refinery Boilers and Isasmelt Auxiliary Boiler

1. Fuel Limitations

Permittee shall only burn natural gas in the Isa auxiliary boiler.
[Condition II.B.2 of Att B of Significant Revision #1000266 to Installation Permit #1232]

2. Sulfur Dioxide

a. Emission Limitations/Standards

1. Permittee shall not cause to be combusted, any fuel oil which contains greater than 0.5 weight percent sulfur.
[40 CFR 60.42c(d)]

2. Compliance with this sulfur dioxide limit shall be determined using a 30-day rolling average period. [40 CFR 60.42c(g)]

3. The sulfur content limit applies at all times including periods of start-up, shutdown, and malfunction. [40 CFR 60.42c(i)]

b. Monitoring, Recordkeeping, and Reporting Requirements

1. Permittee shall submit quarterly reports to the Director. Each quarterly report shall be postmarked by the 30th day following the end of the reporting period. The quarterly reports shall include the following information :

(a) For Fuel Oil #2, fuel supplier certification consisting of :

i) Calendar dates covered in the reporting period;
ii) The name of the oil supplier; and
iii) A statement from the oil supplier that the oil complies with the specifications under the definition of distillate oil in 40 CFR 60.41c.

(b) A certified statement signed by the Permittee that the records of fuel supplier certifications submitted represent all of the fuel combusted during the quarter.
. [40 CFR 60.48c(d), 40 CFR 60.48c(e)(11), and 40 CFR 60.48c(f)]

2. Permittee shall maintain records of the amount of each fuel combusted during each day. [40 CFR 60.48c(g)]

c. Permit Shield

Compliance with the conditions of this part shall be deemed compliance with 40 CFR 60.48c(d), 40 CFR 60.48c(e)(11), 40 CFR 60.48c(f), and 40 CFR 60.48c(g).
[A.A.C. R18-2-325]

3. Nitrogen Oxides (for the Isasmelt auxiliary boiler)

a. Emission Limitations/Standards

Permittee shall not discharge or cause to be discharged from the Isasmelt auxiliary boiler, nitrogen oxide emissions in excess of 1.8 lb/hr.

[Condition II.B.1 of Att B of Significant Revision #1000266 to Installation Permit #1232]

b. Performance Testing Requirements

Permittee shall conduct or cause to be conducted, a performance test on the Isasmelt auxiliary boiler in the first year of the permit term for nitrogen oxides to show compliance with the emission limits specified in subsection a. EPA Reference Method 7E shall be used to determine the emissions of NO_X.

[A.A.C. R18-2-312 and A.A.C. R18-2-306.A.3.c]

c. Permit Shield

Compliance with the conditions of this part shall be deemed compliance with Condition II.B.1 of Att B of Significant Revision #1000266 to Installation Permit #1232. [A.A.C. R18-2-325]

B. Other Fuel Burning Equipment (Change Room Water Heater, Acid Plant Preheater, Converter Preheaters, and Rod Plant Thermal Breaker)

1. Fuel Limitations

Permittee shall only burn natural gas in the acid plant preheater.

[Condition G.4 of Minor Revision #1000324 to Installation Permit #1232]

2. Opacity

a. Emission Limitations/Standards

Permittee shall not cause, allow or permit to be emitted to the atmosphere, any effluent which exceeds 15% opacity.

[A.A.C. R18-2-724.J]

b. Monitoring, Reporting, and Recordkeeping

1. A certified EPA Reference Method 9 observer shall conduct a monthly survey of visible emissions emanating from the stacks of the fuel burning equipment when in operation. If the opacity of the emissions observed appears to exceed the standard, the observer shall, if practicable, conduct a certified EPA Reference Method 9 observation. The results of the Method 9 observation shall be maintained. [A.A.C. R18-2-306.A.3.c]

2. Permittee shall report all 6-minute periods during which the visible emissions exceeds 15% opacity. [A.A.C. R18-2-724.J]

c. Performance testing requirements

Permittee shall conduct an annual performance test for opacity on the fuel burning equipment. The performance test shall be conducted in accordance with Reference Method 9 in 40 CFR 60, Appendix A. [A.A.C. R18-2-306.A.3.c]

d. Permit Shield

Compliance with the conditions of this part shall be deemed compliance with A.A.C.R18-2-724.J. [A.A.C. R18-2-325]

3. Particulate Matter

a. Emission Limitations/Standards

Permittee shall not cause, allow or permit the emission of particulate matter, caused by the combustion of fuel in excess of the amount calculated by the following equation:

$E = 1.02\ Q^{0.769}$ where:

E = the maximum allowable particulate emissions rate in pounds mass per hour.
Q = the heat input in million Btu per hour.

[A.A.C. R18-2-724.C.1]

b. Monitoring, Reporting, and Recordkeeping

When diesel or fuel oil is fired , Permittee shall maintain a record of the fuel firing rate and daily lower heating value of the fuel fired. This may be accomplished by maintaining on record a copy of that part of the contract with the vendor that specifies the lower heating value of the fuel. [A.A.C. R18-2-306.A.3.c]

c. Permit Shield

Compliance with the conditions of this Part shall be deemed compliance with A.A.C. R18-2-724.C.1. [A.A.C. R18-2-325]

4. Sulfur Dioxide

a. Emission Limitations/Standards

1. Permittee shall not emit or cause to emit more than 1.0 pound of sulfur dioxide per million Btu heat input when low sulfur oil is fired. [A.A.C. R18-2-724.E]

2. Permittee shall not fire high sulfur oil (greater than 0.9% sulfur) in the fuel burning equipment. [A.A.C. R18-2-724.G]

b. Monitoring, Reporting, and Recordkeeping

Permittee shall keep records of fuel supplier certification including the following information:

1. The name of the diesel supplier;
2. The heating value of diesel;
3. The sulfur content of diesel from which the shipment came; and
4. The method used to determine the sulfur content of diesel.

[A.A.C. R18-2-306.A.3.c]

c. Permit Shield

Compliance with the conditions of this Part shall be deemed compliance with A.A.C. R18-2-724.E and A.A.C. R18-2-724.G.

[A.A.C. R18-2-325]

C. Rod Plant Shaft Furnace

1. Fuel Limitations

Permittee shall only burn natural gas as fuel in the rod plant shaft furnace.

[A.A.C. R18-2-306.01]

2. Opacity

a. Emission Limitations/Standards

Permittee shall not cause, allow or permit to be emitted to the atmosphere, any effluent which exceeds 40% opacity.

[A.A.C. R18-2-702.B]

b. Permit Shield

Compliance with the conditions of this Part shall be deemed compliance with A.A.C. R18-2-702.B. [A.A.C. R18-2-325]

3. Particulate Matter

a. Emissions Limitations

In any one hour period, the Permittee shall not cause, allow or permit the discharge of particulate matter from the rod plant shaft furnace into the atmosphere in excess of the amounts calculated by one of the following equations:

1. For process sources having a process weight rate of 60,000 pounds per hour (30 tons per hour) or less, the maximum allowable emissions shall be determined by the following equation:

$E = 4.1P^{0.67}$

where:
E = the maximum allowable particulate emissions rate in pounds-mass per hour.
P = the process weight rate in tons-mass per hour

2. For process sources having a process weight rate greater than 60,000 pounds per hour (30 tons per hour), the maximum allowable emissions shall be determined by the following equation:

$E = 55P^{0.11} - 40$

where “E” and “P” are defined as indicated in Paragraph “1" of this subsection.

[A.A.C. R18-2-730.A.1]

b. Permit Shield

Compliance with the conditions of this Part shall be deemed compliance with A.A.C. R18-2-730.A.1 [A.A.C. R18-2-325]

4. Sulfur Dioxide

a. Emission Limitation/Standards

Permittee shall not cause, allow, or permit the discharge of sulfur dioxide from the rod plant shaft furnace into the atmosphere in excess of 600 parts per million. [A.A.C. R18-2-730.A.2]

b. Permit Shield

Compliance with the conditions of this Part shall be deemed compliance with A.A.C. R18-2-730.A.2. [A.A.C. R18-2-325]

5. Nitrogen Oxides

a. Emission Limitations/Standards

Permittee shall not cause, allow, or permit the discharge of nitrogen oxides from the rod plant shaft furnace into the atmosphere in excess of 500 parts per million. [A.A.C. R18-2-730.A.3]

b. Permit Shield

Compliance with the conditions of this Part shall be deemed compliance with A.A.C. R18-2-730.A.3. [A.A.C. R18-2-325]

IX. Stationary Rotating Machinery

A. Opacity Standards

1. Emission Limitations/Standards

Permittee shall not cause, allow or permit to be emitted into the atmosphere from any stationary rotating machinery, smoke for any period greater than ten consecutive seconds which exceeds 40 percent opacity. Visible emissions when starting cold equipment shall be exempt from this requirement for the first ten minutes. [A.A.C. R18-2-719.E]

2. Monitoring, Recordkeeping, and Reporting Requirements

A certified EPA Reference Method 9 observer shall conduct a monthly survey of visible emissions emanating from the stacks of the generators. If the opacity of the emissions observed appears to exceed the standard, the observer shall conduct a certified EPA Reference Method 9 observation. The results of the Method 9 observation shall be maintained.

[A.A.C. R18-2-306.A.3.c]

3. Permit Shield

Compliance with the conditions of this Part shall be deemed compliance with A.A.C.R18-2-719.E. [A.A.C. R18-2-325]

B. Particulate Matter

1. Emission Limitations/Standards

Permittee shall not cause, allow or permit the emission of particulate matter, caused by the combustion of fuel in excess of the amount calculated by the following equation.:

$E = 1.02\ Q^{.769}$ where:

E = the maximum allowable particulate emissions rate in pounds-mass per hour.
Q = the heat input in million Btu per hour. [A.A.C. R18-2-719.C.1]

2. Monitoring, Reporting, and Recordkeeping

Permittee shall maintain a record of the daily lower heating value of the fuel fired in the generators. This may be accomplished by maintaining on record a copy of that part of the contract with the vendor that specifies the lower heating value of the fuel.

[A.A.C. R18-2-306.A.3.c & A.A.C. R 18-2-719.I]

3. Permit Shield

Compliance with the conditions of this Part shall be deemed compliance with A.A.C. R18-2-719.C.1 and A.A.C. R18-2-719.I. [A.A.C. R18-2-325]

C. Sulfur Dioxide

1. Emission Limitations/Standards

a. Permittee shall not emit or cause to emit more than 1.0 pound of sulfur dioxide per million Btu heat input when low sulfur oil is fired.

[A.A.C. R18-2-719.F]

b. Permittee shall not fire high sulfur oil (greater than 0.9% sulfur) in the generator.

[A.A.C. R18-2-719.H]

2. Monitoring, Reporting, and Recordkeeping

Permittee shall keep records of fuel supplier certification including the following information:

a. The name of the diesel supplier;
b. The heating value of diesel;
c. The sulfur content of diesel from which the shipment came; and
d. The method used to determine the sulfur content of diesel.

[A.A.C. R18-2-306.A.3.c]

3. Permit Shield

Compliance with the conditions of this Part shall be deemed compliance with A.A.C. R18-2-719.F and A.A.C. R18-2-719.H. [A.A.C. R18-2-325]

D. Nitrogen Oxides (for the Isasmelt standby generator)

1. Emission Limitations/Standards

Permittee shall not discharge or cause to be discharged from the Isasmelt standby generator, nitrogen oxide emissions in excess of 29 lb/hr.

[Condition II.C.1 of Att B of Significant Revision #1000266 to Installation Permit #1232]

2. Performance Testing Requirements

Permittee shall conduct or cause to be conducted, a performance test on the Isasmelt standby generator in the first year of the permit term for nitrogen oxides to show compliance with the emission limits specified in subsection 1 above. EPA Reference Method 7E shall be used to determine the emissions of NO_X.

[A.A.C. R18-2-312 and A.A.C. R18-2-306.A.3.c]

3. Permit Shield

Compliance with the conditions of this part shall be deemed compliance with Condition II.C.1 of Att B of Significant Revision #1000266 to Installation Permit #1232. [A.A.C. R18-2-325]

E. Hourly Restrictions for the Isamelt standby generator

1. Operating Hours Limitation

Permittee shall not use the Isasmelt standby generator for more than 500 hours in any

consecutive 365 day period.

[Condition II.C.3 of Att B of Significant Revision #1000266 to Installation Permit #1232]

2. Monitoring, Recordkeeping, and Reporting Requirements

Permittee shall log and maintain daily hours of operation of the Isasmelt standby generator. At the end of every month, Permittee shall update monthly and rolling twelve month totals of the hours of operation of the Isasmelt standby generator.

[Condition IV.B.4 of Att B of Significant Revision #1000266 to Installation Permit #1232 & A.A.C. R18-2-306.A.3.c]

3. Permit Shield

Compliance with the conditions of this part shall be deemed compliance with Conditions II.C.3 and IV.B.4 of Att B of Significant Revision #1000266 to Installation Permit #1232. [A.A.C. R18-2-325]

X. Facility Wide Requirements (Multi Point Rollback Rule)

A. General Provisions of the Section

1. Applicability

The requirements of this section are applicable to the sulfur dioxide emissions plant wide.

2. Definitions

a. An "operating day", for the purpose of this section, means any day in which sulfur containing feed is introduced into the smelting process.

[A.A.C. R18-2-715.01(J)]

b. "Compliance period", for the purposes of this section, means the 365 calendar days immediately preceding the end of each day of the month being reported unless that period includes less than 300 operating days. In such case the number of days preceding the last day of the compliance period shall be increased until the compliance period contains 300 operating days. [A.A.C. R18-2-715.01(J)]

B. Emission Limitations and Standards

1. Annual average sulfur dioxide emissions [A.A.C. R18-2-715(F)(4)(a)]

Annual average SO_2 emissions shall not exceed 3163 pounds per hour.

2. Allowable sulfur dioxide emissions profile [A.A.C. R18-2-715(F)(4)(b)]

The number of three-hour average emissions shall not exceed n cumulative occurrences in excess of E, the emission level, shown below in any compliance period:

Allowable SO_2 emissions profile

Occurrences, n	Emission Level, E (lbs/hr)	Occurrences, n	Emission Level, E (lbs/hr)
0	16, 900	180	8, 200
1	15, 800	245	7, 600
2	14, 750	330	7, 200
4	13, 900	435	6, 750
7	13, 100	560	6, 300
12	12, 250	710	5, 800
20	11, 500	890	5, 500
32	10, 800	1100	5, 200
48	10, 250	1340	4, 800
68	9, 750	1610	4, 500
94	9, 250	1910	4, 100
130	8, 700	2240	3, 800

C. Monitoring, Recordkeeping and Reporting Requirements

1. Sulfur Balance

As a means of determining total overall emissions, Permittee shall perform material balances for sulfur in accordance with the procedures prescribed in the Attachment D of this permit. [A.A.C. R18-2-715.01(O)]

2. For purposes of determining compliance with the cumulative occurrence and emission limits contained in paragraphs X.B.1 and 2 of this section, Permittee shall continue to calibrate, maintain, and operate a measurement system for continuously monitoring sulfur dioxide concentrations and stack gas volumetric flow rates of the following:
[A.A.C. R18-2-715.01(K), (K)(1) and (K)(2)]

a. Acid Plant Tailgas Stack
b. Vent Fume Stack

3. Quality control and assurance requirements for the continuous monitoring systems:

   a. All the stack gas volumetric flow rate measurement systems shall meet 40 CFR Part 60, Appendix B, "Performance Specification 6 - Specifications and Test Procedures for Continuous Emission Rate Monitoring Systems in Stationary Sources":

   [A.A.C. R18-2-715.01(K)(5)(a)]

      1. Performance and Equipment Specifications
      2. CD Test Procedure
      3. RA Test Procedure

   b. The SO_2 CEMS shall meet 40 CFR Part 60, Appendix B, "Performance Specification 2 - Specifications and Test Procedures for SO_2 and NOx Continuous Emission Monitoring Systems in Stationary Sources":

   [A.A.C. R18-2-715.01(K)(5)(b)]

      1. Installation and Measurement Location Specifications
      2. Performance and Equipment Specifications
      3. Performance Specification Test Procedure
      4. The CEMS Calibration Drift Test Procedure
      5. Relative Accuracy Test Procedure
      6. Equations

   c. Permittee shall conduct the demonstrations of measurement systems performance required by the preceding paragraphs a and b in accordance with the ADEQ approved QA/QC plan.

   [Condition V.C of Att B of Installation Permit #1232]

   d. Location change of all sampling points for monitoring sulfur dioxide concentrations and stack gas volumetric flow rates shall be approved in writing by the Director. [A.A.C. R18-2-715.01(K)(5)(d)]

   e. Failure to measure at least 95 percent of the hours during which emissions occurred in any month, using the continuous monitoring systems, shall constitute a violation. [A.A.C. R18-2-715.01(L)]

   f. Failure to measure any 12 consecutive hours of emissions in accordance with the requirements in this subsection shall constitute a violation.

   [A.A.C. R18-2-715.01(M)]

   g. Permittee shall maintain on hand and ready for immediate installation sufficient spare parts or duplicate systems for the continuous monitoring equipment required

by this subsection to allow for the replacement within six hours of any monitoring equipment part which fails or malfunctions during operation. [A.A.C. R18-2-715.01(N)]

4. For purposes of this subsection, continuous monitoring means the taking and recording of at least one measurement of sulfur dioxide concentration and stack gas flow rate reading from the effluent of each affected stack, outlet or other approved measurement location in each 15-minute period. An hour of smelter emissions will be considered to have been continuously monitored if the emissions from all monitored stacks, outlets or other approved measurement locations are measured for at least 45 minutes of any hour in accordance with the requirements of this subsection.
[A.A.C. R18-2-715.01(K)(4)]

5. If Permittee can demonstrate to the Director that measurement of stack gas volumetric flow in the outlet of any particular piece of sulfur dioxide control equipment would yield inaccurate results or would be technologically infeasible, then the Director may allow measurement of the flow rate at an alternative sampling point. [A.A.C. R18-2-715.01(K)(3)]

6. For purposes of determining compliance with the cumulative occurrence and emission limits contained in paragraphs X.B.1 and 2 of this section, the annual average emissions and three-hour emissions shall be determined as follows:

   a. Permittee shall, at the end of each day, calculate annual average SO_2 emissions by averaging the SO_2 emissions for all hours measured during the compliance period ending on that day.
   [A.A.C. R18-2-715.01(C)(1)]

   b. Permittee shall, at the end of each clock hour, calculate three-hour SO_2 emissions averages by averaging the hourly SO_2 emissions for the preceding three consecutive hours whenever each such hour was measured in accordance with the requirements contained in this subsection. [A.A.C. R18-2-715.01(C)(2)]

   c. The actual cumulative occurrence and emission level shall be determined using the sum total of sulfur dioxide emissions from the smelter processing units and sulfur dioxide control and removal equipment. The captured fugitive emissions shall be included as part of the total plant emissions, but not the uncaptured fugitive emissions and those emissions due solely to the use of fuel for space heating or steam generation. [A.A.C. R18-2-715.01(A) and 715.01(K)(2)]

   d. Periods of malfunction, startup, shutdown or other upset conditions shall be included in the determination. [A.A.C. R18-2-715.01(B)]

7. Violation Determination

For purposes of this section, the following scenarios shall be considered violations of the cumulative occurrence and/or emission limits contained in paragraphs X.B.1 and 2 of this section:

a. An annual emissions average in excess of the allowable annual average emission limit given in paragraph X.B.1 of this section shall be considered a violation if either: [A.A.C. R18-2-715.01(C)(1)]

1. The annual average is larger than the annual average computed for the preceding day; or

2. The annual averages computed for the five preceding days all exceed the allowable annual average emission limit.

b. A three-hour emissions average in excess of an emission level (E) will be considered to violate the associated cumulative occurrence limit (n) listed in of this section if both:

1. The number of all three-hour emissions averages measured during the compliance period in excess of that emission level exceeds the cumulative occurrence limit associated with the emission level; and

2. The average was measured during the last operating day of the compliance period being reported.

[A.A.C. R18-2-715.01(E)]

c. A three-hour emissions average can only violate the cumulative occurrence limit (n) of an emission level (E) in the day containing the last h our in the average.
[A.A.C. R18-2-715.01(F)]

d. Multiple violations of a cumulative occurrence limit in the same day and violations of different cumulative limits in the same day shall constitute a single violation.
[A.A.C. R18-2-715.01(G)]

e. The violation of any cumulative occurrence limit and an annual average emission limit in the same day shall constitute only a single violation.
[A.A.C. R18-2-715.01(H)]

f. Multiple violations of a cumulative occurrence limit by different three-hour emissions averages containing any common hour shall constitute a single violation.
[A.A.C. R18-2-715.01(I)]

8. Recordkeeping and Reporting Requirements

a. Permittee shall maintain a record of all average hourly emissions measurements required to be measured by this section in accordance with the requirements specified in Section XIII, Attachment "A" of this permit. [A.A.C. R18-2-715.01(P)]

b. Monthly reporting requirements

All of the following measurement results shall be expressed as pounds per hour of sulfur dioxide and shall be summarized monthly and submitted to the Director within 20 days after the end of each month:

[A.A.C. R18-2-715.01(P)]

1. For all periods described in X.C.6 of this section, the annual average emissions (expressed in pounds per hour) as calculated at the end of each day of the month;

2. The total number of hourly periods during the month in which measurements were not taken and the reason for loss of measurement for each period;

3. The number of three-hour emissions averages which exceeded each of the applicable emissions levels listed in Section X.B.2 for the compliance periods ending on each day of the month being reported;

4. The date on which a cumulative occurrence limit listed in Section X.B.2 was exceeded if such exceedance occurred during the month being reported.

c. Bypass reporting requirements

At each point in the permitted smelter facility where a means exists to bypass the sulfur removal equipment, such bypass shall be instrumented and monitored to detect and record all periods that the bypass is in operation. Permittee shall report to the Director, not later than the 15th day of each month, the information required to be recorded by this Section. Such report shall include an explanation for the necessity of the use of the bypass. [A.A.C. R18-2-715.01(T)]

D. Permit Shield

Compliance with the conditions of this part shall be deemed compliance with A.A.C. R18-2-715.F.4, A.A.C. R18-2-715.01.A, A.A.C. R18-2-715.01.B, A.A.C. R18-2-715.01.C, A.A.C. R18-2-715.01.E, A.A.C. R18-2-715.01.F, A.A.C. R18-2-715.01.G, A.A.C. R18-2-715.01.H, A.A.C. R18-2-715.01.I, A.A.C. R18-2-715.01.J, A.A.C. R18-2-715.01.K, A.A.C. R18-2-715.01.L, A.A.C. R18-2-715.01.M, A.A.C. R18-2-715.01.N, A.A.C. R18-2-715.01.O, A.A.C. R18-2-715.01.P, A.A.C. R18-2-715.01.P, and A.A.C. R18-2-715.01.T.
[A.A.C. R18-2-325]

XI. Converter Arsenic Charging Rate

A. Arsenic Charging Rate Limitation

Permittee shall not add molten or solid materials to the converters with a total arsenic charging rate equal to or greater than 75 kg/hr, averaged over a 1-year period, where arsenic charging rate means the hourly rate at which arsenic is charged to the copper converters based on the arsenic content of the copper matte that is charged to the copper converters. [40 CFR 61.172(a)]

B. Monitoring Requirements [40 CFR 61.174(f)]

Permittee shall determine the converter arsenic charging rate as follows:

1. Collect daily grab samples of copper matte charged to the copper converters.

2. Each calendar month, from the daily grab samples collected under paragraph a above, put together a composite copper matte sample. Analyze the composite sample individually using Method 108A, 108B, or 108C to determine the weight percent of inorganic arsenic contained in each sample.

3. Calculate the converter arsenic charging rate once per month using the following equation:

$$R_c = \sum_{i=1}^{n} \frac{A_c W_{ci} \% A_l W_{li}}{100 H_c}$$

Where:

R_c = Converter arsenic charging rate (kg/h).
A_c = Monthly average weight percent of arsenic in the copper matte charged during the month (%)
W_{ci} = Total weight of copper matte charged to a copper converter during the month (kg).
H_c = Total number of hours the copper converter department was in operation during the month (h).
n = Number of copper converters in operation during the month.

4. Determine an annual arsenic charging rate for the copper converter department once per

month by computing the arithmetic average of the 12 monthly converter arsenic charging rate values (R_c) for the preceding 12-month period.

C. Recordkeeping and Reporting Requirements [40 CFR 61.176 & 40 CFR 61.177]

1. Permittee shall maintain at the source for a period of at least 2 years and make available to the Director upon request the following records:

a. For each copper converter department, a monthly record of the weight percent of arsenic contained in the copper matte as determined under XI.B of this section. [40 CFR 61.176(c)(2)]

b. For each copper converter department, the monthly calculations of the average annual arsenic charging rate for the preceding 12-month period as determined under XI.B of this section. [40 CFR 61.176(c)(3)]

2. Permittee shall submit annually a written report to the Director that includes the monthly computations of the average annual converter arsenic charging rate as calculated under XI.B.4 of this section. The annual report shall be postmarked by the 30th day following the end of each calendar year. [40 CFR 61.177(f)]

D. Permit Shield

Compliance with the conditions of this part shall be deemed compliance with 40 CFR 61.172(a), 40 CFR 61.174(f), 40 CFR 61.176(c)(2), 40 CFR 61.176(c)(3), and 40 CFR 61.177(f). [A.A.C. R18-2-325]

XII. Electrolytic Refinery, Anode Slimes Processing, and Rod Plant (excluding shaft furnace)

A. Opacity and Particulate Matter

1. Emission Limitations/Standards

a. Permittee shall not cause to be discharged into the atmosphere, any gases which exhibit greater than 40 percent opacity. [A.A.C. R18-2-702.B]

b. In any one hour period, the Permittee shall not cause, allow or permit the discharge of particulate matter from the rod plant shaft furnace into the atmosphere in excess of the amounts calculated by one of the following equations:

1. For process sources having a process weight rate of 60,000 pounds per hour (30

tons per hour) or less, the maximum allowable emissions shall be determined by the following equation:

$E = 4.1P^{0.67}$

where:
E = the maximum allowable particulate emissions rate in pounds-mass per hour.
P = the process weight rate in tons-mass per hour

2. For process sources having a process weight rate greater than 60,000 pounds per hour (30 tons per hour), the maximum allowable emissions shall be determined by the following equation:

$E = 55P^{0.11} - 40$

where "E" and "P" are defined as indicated in Paragraph "1" of this subsection.

[A.A.C. R18-2-730.A.1]

2. Air Pollution Control Requirements

Permittee shall maintain and operate the baghouse associated with the anode slimes dryer for minimizing emissions of particulate matter.

[A.A.C. R18-2-331]
[Material permit conditions are identified by underline]

3. Performance Testing Requirements

Permittee shall conduct an annual performance test for opacity on the electrolytic refinery and rod plant. The performance test shall be conducted in accordance with Reference Method 9 in 40 CFR 60, Appendix A.

[A.A.C. R18-2-312.G and A.A.C. R18-2-306.A.2]

4. Permit Shield

Compliance with the conditions of this part shall be deemed compliance with A.A.C. R18-2-702.B and 40 CFR 52.126(b)(1). [A.A.C. R18-2-325]

B. Sulfuric Acid Mist and Volatile Organic Compounds

1. Emission Limitations/Standards

a. Permittee shall not cause the emission of gaseous or odorous materials from

equipment and operations associated with the refinery process in such quantities or concentrations as to cause air pollution.

[A.A.C. R18-2-730.D]

b. Materials including solvents or other volatile compounds, acids, and alkalis utilized in the refinery process shall be processed, stored, used, and transported in such a manner and by such means that they will not evaporate, leak, escape or be otherwise discharged into the ambient air so as to cause or contribute to air pollution. Where means are available to reduce effectively the contribution to air pollution from evaporation, leakage, or discharge, the installation and use of such control methods, devices, or equipment shall be mandatory. [A.A.C. R18-2-730.F]

c. Where a stack, vent or other outlet is at such a level that fumes, gas, mist, odor, smoke, vapor, or any combination thereof constituting air pollution is discharged to adjoining property, the Director may require the installation of abatement equipment or the alteration of such stack, vent or other outlet by the Permittee thereof to a degree that will adequately dilute, reduce or eliminate the discharge of air pollution to the adjoining property. [A.A.C. R18-2-730.G]

2. Air Pollution Control Requirements

a. Permittee shall maintain and operate the demisters associated with the cathode stripping and washing area in the electrolytic refinery for minimizing emissions of sulfuric acid mist.

b. Permittee shall maintain and operate the two scrubbers associated with the electrolyte circulation tanks and electrolyte decant/storage tanks in the electrolytic refinery for minimizing emissions of sulfuric acid mist.

c. Permittee shall maintain and operate the scrubber associated with the slimes autoclave in the electrolytic refinery for minimizing emissions of sulfuric acid mist.

[A.A.C. R18-2-331]
[Material permit conditions are identified by underline]

3. Monitoring, Recordkeeping, and Reporting Requirements

Permittee shall maintain a record of the control measures used at the refinery plant.

[A.A.C. R18-2-306.A.3.c]

4. Permit Shield

Compliance with the conditions of this part shall be deemed compliance with A.A.C. R18-2-730.D, F, and G. [A.A.C. R18-2-325]

XIII. General Provisions for Continuous Monitoring Systems

A. The SO_2 CEMS shall meet the following quality assurance requirements:

1. Calibration drift checks

Permittee shall check the zero (or low-level value between 0 and 20% of span value) and span (50 to 100 percent of span value) calibration drifts (CD) at least once daily in accordance with a written procedure prescribed by the manufacturer. [40 CFR 60.13(d)(1)]

2. Zero and span drift adjustments

a. The zero and span shall, as a minimum, be adjusted whenever the 24-hr zero drift or 24-hr span drift exceeds 100 ppm. [40 CFR 60.13(d)(1)]

b. The CEMS shall allow for the amount of excess zero and span drift measured at the 24-hour interval checks to be recorded and quantified. [40 CFR 60.13(d)(1)]

3. Minimum frequency of operation [40 CFR 60.13(e)(2)]

Except during periods of system breakdowns, repairs, calibration checks, and zero and span adjustments, the CEMS shall be in continuous operation and shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period.

Data reduction procedures [40 CFR 60.13(h)]

a. Permittee shall reduce all data from the CEMS to 1-hour averages. The 1-hour averages shall be computed from four or more data points equally spaced over each 1-hour period.

b. Data recorded during periods of system breakdowns, repairs, calibration checks, and zero and span adjustments shall not be included in the data averages computed under the previous paragraph. An arithmetic or integrated average of all data may be used. The data may be recorded in reduced or nonreduced form.

B. Recordkeeping and Reporting Requirements for Continuous Monitoring Systems

1. Permittee shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility under this Section; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is in operative. [40 CFR 60.7(b)]

2. Permittee shall maintain a file of all measurements, including continuous monitoring system, monitoring device, and performance testing measurements; all continuous monitoring system performance evaluations; all continuous monitoring system or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; and all other information required by this section recorded in a permanent form suitable for inspection. The file shall be retained for at least five years following the date of such measurements, maintenance, reports and records.
[40 CFR 60.7(f) and A.A.C. R18-2-306(A)(4)(b)]

3. Quarterly excess emissions and monitoring systems performance reports

   a. Permittee shall submit an excess emissions and monitoring systems performance (MSP) report and/or a summary report form to the Department for every calendar quarter, unless the total duration of excess emissions for the reporting period is less than 1 percent of the total operating time for the reporting period and the continuous monitoring system downtime for the reporting period is less than 5 percent of the total operating time for the reporting period, in which case only the summary report form shall be submitted and the excess emissions report need not be submitted unless requested by the Department. All quarterly reports shall be postmarked by the 30th day following the end of each calendar quarter. [40 CFR 60.7(c) and (d)]

   b. The summary report form submission required in the preceding paragraph shall be in the format specified in 40 CFR 60.7(d). Each excess emission and MSP report shall include the following information: [40 CFR 60.7(c)]

      1. The magnitude of excess emissions computed, any conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions. The process operating time during the reporting period.

      2. Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the affected facility. The nature and cause of any malfunction (if known), the corrective action taken or preventative measures adopted.

      3. The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments.
      4. When no excess emissions have occurred or the continuous monitoring system(s) have not been inoperative, repaired, or adjusted, such information shall be stated in the report.

XIV. Non Point Sources

A. Emission Limits/Standards

1. Open Areas, Roadways & Streets, Storage Piles, and Material Handling

a. Permittee shall not cause, allow or permit visible emissions from open areas, roadways and streets, storage piles or material handling in excess of 40% opacity measured in accordance with the Arizona Testing Manual, Reference Method 9. Open fires permitted under A.A.C. R18-2-602 are exempt from this requirement. [A.A.C. R18-2-612]

b. Permittee shall employ the following reasonable precautions to prevent excessive amounts of particulate matter from becoming airborne:

1. Keep dust and other types of air contaminants to a minimum in an open area where construction operations, repair operations, demolition activities, clearing operations, leveling operations, or any earth moving or excavating activities are taking place, by good modern practices such as using an approved dust suppressant or adhesive soil stabilizer, paving, covering, landscaping, continuous wetting, detouring, barring access, or other acceptable means; [A.A.C. R18-2-604.A]

2. Keep dust to a minimum from driveways, parking areas, and vacant lots where motor vehicular activity occurs by using an approved dust suppressant, or adhesive soil stabilizer, or by paving, or by barring access to the property, or by other acceptable means; [A.A.C. R18-2-604.B]

3. Keep dust and other particulates to a minimum by employing dust suppressants, temporary paving, detouring, wetting down or by other reasonable means when a roadway is repaired, constructed, or reconstructed; [A.A.C. R18-2-605.A]

4. Take reasonable precautions, such as wetting, applying dust suppressants, or covering the load when transporting material likely to give rise to airborne dust; [A.A.C. R18-2-605.B]

5. Take reasonable precautions, such as the use of spray bars, wetting agents, dust suppressants, covering the load, and hoods when crushing, handling, or conveying material likely to give rise to airborne dust; [A.A.C. R18-2-606]

6. Take reasonable precautions such as chemical stabilization, wetting, or covering when organic or inorganic dust producing material is being stacked, piled, or otherwise stored; [A.A.C. R18-2-607.A]

7. Operate stacking and reclaiming machinery utilized at storage piles at all times

with a minimum fall of material, or with the use of spray bars and wetting agents; [A.A.C. R18-2-607.B]

8. Take reasonable precautions such as the use of dust suppressants before the cleaning of site, roadway, or alley. Earth or other material shall be removed from paved streets onto which earth or other material has been transported by trucking or earth moving equipment, erosion by water or by other means; or [A.A.C. R18-2-804.B]

9. Any other method as proposed by Permittee and approved by the Director. [A.A.C. R18-2-306.A.3.c]

2. Open Burning

Except as provided in A.A.C. R18-2-602.C(1), C(3), and C(4), and except when permitted to do so by either ADEQ or the local officer delegated the authority for issuance of open burning permits, Permittee shall not conduct open burning. [A.A.C. R18-2-602]

B. Monitoring, Recordkeeping and Reporting Requirements

1. Open Areas, Roadways & Streets, Storage Piles and Material Handling

Permittee shall maintain records of the dates on which any of the activities listed in XIV.A.1.b(1) through (9) of this section were performed and control measures adopted. [A.A.C. R18-2-306.A.3.c]

2. Bi-weekly Monitoring Requirement

a. Within 90 days of issuance of this permit, Permittee shall submit a visual observation plan to be approved by the Department. The observation plan shall identify a central lookout station or multiple observation points, as appropriate, from where the non point sources shall be monitored. When multiple observation points are used, all the non point sources associated with each observation point shall be specifically identified within the observation plan.

b. The certified Method 9 observer shall conduct a bi-weekly (once in two weeks) visual survey of visible emissions from the non-point sources when they are in operation in accordance with the observation plan. Permittee shall keep a record of the name of the observer, the date on which the observation was made, and the results of the observation.

c. If the observer sees a plume from a non-point source that on an instantaneous basis appears to exceed 40%, then the observer, shall if practicable, take a six-minute

Method 9 observation of the plume.

d. If the six-minute opacity of the plume is less than 40%, the observer shall make a record of the following:

1. Location, date, and time of the observation; and
2. The results of the Method 9 observation.

e. If the six-minute opacity of the plume exceeds 40%, then the Permittee shall do the following:

1. Adjust or repair the controls or equipment to reduce opacity to below 40%; and
2. Report it as an excess emission under Section XI.A of Attachment "A".

f. Any changes to the observation plan, originally approved by the Department, shall be made only with the prior approval of the Director. [A.A.C. R18-2-306.A.3.c]

3. Open Burning

The monitoring requirements for Section XIV.A.2 of this attachment may be complied with by maintaining copies of all open burning permits on file.

[A.A.C. R18-2-306.A.3.c]

C. Permit Shield

Compliance with the conditions of this part shall be deemed compliance with A.A.C. R18-2-602, A.A.C. R18-2-604.A, A.A.C. R18-2-604.B, A.A.C. R18-2-605, A.A.C. R18-2-606, A.A.C. R18-2-607, A.A.C. R18-2-610, and A.A.C. R18-2-804.B.

[A.A.C. R18-2-325]

XV. Other Periodic Activities

A. Abrasive Blasting

1. Opacity of Visible Emissions

a. Permittee shall not cause, allow or permit visible emissions from sandblasting or other abrasive blasting operations in excess of 40% opacity as measured by EPA Reference Method 9.

[A.A.C. R18-2-702.B]

b. The Permittee shall not cause or allow sandblasting or other abrasive blasting without minimizing dust emissions to the atmosphere through the use of good modern practices. Good modern practices include:

1. wet blasting;
2. effective enclosures with necessary dust collecting equipment;
3. Slag-based abrasive material; or
4. any other method as approved by the Director.

[A.A.C. R18-2-726]

2. Monitoring, Recordkeeping, and Reporting Requirements

[A.A.C. R18-2-306.A.3.c]

Each time an abrasive blasting project is conducted, the Permittee shall log in ink or in an electronic format, a record of the following:

a. The date the project was conducted;
b. The duration of the project; and
c. Type of control measures employed.

3. Permit Shield

Compliance with the conditions of this Part shall be deemed compliance with A.A.C.R18-2-702.B and A.A.C.R18-2-726. [A.A.C. R18-2-325]

B. Use of Paints

1. Opacity of Visible Emissions

Emission Limitations/Standards

A visible plume or effluent from spray painting operations shall not have an opacity greater than 40%, measured in accordance with by EPA Reference Method 9. [A.A.C.R18-2-702.B]

2. Volatile Organic Compounds

a. Emission Limitations/Standards

While performing spray painting operations the Permittee shall comply with the following requirements:

1. The Permittee shall not conduct any spray painting operation

without minimizing organic solvent emissions. Such operations other than architectural coating and spot painting, shall be conducted in an enclosed area equipped with controls containing no less than 96 percent of the overspray.

[A.A.C.R18-2-727.A]

2. The Permittee shall not either:

   (a) Employ, apply, evaporate or dry any architectural coating containing photochemically reactive solvents for industrial or commercial purposes; or
   (b) Thin or dilute any architectural coating with a photochemically reactive solvent. [A.A.C.R18-2-727.B]

3. For the purposes of parts (2) and (5) of this condition, a photochemically reactive solvent shall be any solvent with an aggregate of more than 20 percent of its total volume composed of the chemical compounds classified in paragraphs (a) through (c) of this subsection, or which exceeds any of the following percentage composition limitations, referred to the total volume of solvent:

   (a) A combination of the following types of compounds having an olefinic or cyclo-olefinic type of unsaturation - hydrocarbons, alcohols, aldehydes, esters, ethers, or ketones : 5 percent
   (b) A combination of aromatic compounds with eight or more carbon atoms to the molecule except ethylbenzene: 8 percent
   (c) A combination of ethylbenzene, ketones having branched hydrocarbon structures, trichloroethylene or toluene: 20 percent [A.A.C.R18-2-727.C]

4. Whenever any organic solvent or any constituent of an organic solvent may be classified from its chemical structure into more than one of the groups or organic compounds described in subsection 3(a) through 3(c) of this condition, it shall be considered to be a member of the group having the least allowable percent of the total volume of solvents.

[A.A.C.R18-2-727.D]

5. The Permittee shall not dispose by evaporation more than 1.5 gallons of photochemically reactive solvent in any one day.

[SIP Provision R9-3-527.C]

b. Monitoring, Recordkeeping, and Reporting Requirements
[A.A.C. R18-2-306.A.3.c]

1. Each time a spray painting project is conducted, the Permittee shall log in ink or in an electronic format, a record of the following:

(a) The date the project was conducted;
(b) The duration of the project;
(c) Type of control measures employed; and
(d) Reference to the onsite location of Material Safety Data Sheets for all paints and solvents used in the project.

2. Architectural coating and spot painting projects shall be exempt from the recordkeeping requirements of part (1) above.

3. Permit Shield

Compliance with the conditions of this Part shall be deemed compliance with A.A.C.R18-2-727 and SIP Provision R9-3-527.C. [A.A.C. R18-2-325]

C. Mobile Sources

The requirements of this condition are applicable to mobile sources which either move while emitting air contaminants or are frequently moved during the course of their utilization but are not classified as motor vehicles, agricultural vehicles, or are agricultural equipment used in normal farm operations. Mobile sources shall not include portable sources as defined in A.A.C. R18-2-101.84. [A.A.C. R18-2-801]

1. Emission Limitations/Standards for Roadway and Site Cleaning Machinery

Permittee shall not cause, allow or permit to be emitted into the atmosphere from any roadway and site cleaning machinery smoke or dust for any period greater than ten consecutive seconds, the opacity of which exceeds 40 percent. Visible emissions when starting cold equipment shall be exempt from this requirement for the first ten minutes. [A.A.C. R18-2-804.A]

2. Permit Shield

Compliance with the conditions of this Part shall be deemed compliance with A.A.C. R18-2-801 and A.A.C. R18-2-804.A. [A.A.C. R18-2-325]

D. Demolition/Renovation

1. Emission Limitations/Standards

The Permittee shall comply with the applicable requirements of 40 CFR 61, Subpart M (National Emissions Standards for Hazardous Air Pollutants - Asbestos). [A.A.C.R18-2-1101.A.8]

2. Monitoring, Recordkeeping, and Reporting Requirements

[A.A.C. R18-2-306.A.3.c]

Permittee shall keep all required records in a file. The required records include the "NESHAP Notification for Renovation and Demolition Activities" form and all supporting documents.

E. Nonvehicle Air Conditioner Maintenance and/or Services

1. Emission Limitations/Standards

The Permittee shall comply with the applicable requirements of 40 CFR 82 - Subpart F (Protection of Stratospheric Ozone - Recycling and Emissions Reduction). [40 CFR 82, Subpart F]

2. Monitoring, Recordkeeping, and Reporting Requirements

[A.A.C. R18-2-306.A.3.c]

Permittee shall keep all records required by the applicable requirements of 40 CFR 82 - Subpart F in a file.

XVI. Miscellaneous Storage Tanks

Volatile Organic Compounds

A. Emission Limitations/Standards

1. Permittee shall not cause the emission of gaseous or odorous materials in such quantities or concentrations as to cause air pollution. [A.A.C. R18-2-730.D]

2. Materials including solvents or other volatile compounds, acids, and alkalis shall be processed, stored, used, and transported in such a manner and by such means that they will not evaporate, leak, escape or be otherwise discharged into the ambient air so as to cause or contribute to air pollution. Where means are available to reduce effectively the contribution to air pollution from evaporation,

leakage, or discharge, the installation and use of such control methods, devices, or equipment shall be mandatory. [A.A.C. R18-2-730.F]

3. Where a stack, vent or other outlet is at such a level that fumes, gas, mist, odor, smoke, vapor, or any combination thereof constituting air pollution is discharged to adjoining property, the Director may require the installation of abatement equipment or the alteration of such stack, vent or other outlet by the Permittee thereof to a degree that will adequately dilute, reduce or eliminate the discharge of air pollution to the adjoining property. [A.A.C. R18-2-730.G]

B. Permit Shield

Compliance with the conditions of this Part shall be deemed compliance with A.A.C. R18-2-730.D, A.A.C. R18-2-730.F, and A.A.C R18-2-730.G [A.A.C. R18-2-325]

XVII. Storage Vessels for Petroleum Liquids

Permittee shall equip all petroleum liquid storage tanks (with a capacity less than 40, 000 gallons) with a submerged filling device, or acceptable equivalent, for the control of hydrocarbon emissions. [A.A.C. R18-2-710.B]

For purposes of this section, "Petroleum liquids" means petroleum, condensate, and any finished or intermediate products manufactured in a petroleum refinery but does not mean Number 2 through Number 6 fuel oils as specified in ASTM D-396-90a (Specification for Fuel Oils), gas turbine fuel oils Numbers 2-GT through 4-GT as specified in ASTM D-2880-90a (Specification for Gas Turbine Fuel Oils), or diesel fuel oils Numbers 2-D and 4-D as specified in ASTM D-975-90 (Specification for Diesel Fuel Oils). [A.A.C. R18-2-701(21)]

XVIII. Ambient Monitors

A. General Monitoring Requirements

1. Permittee shall continue to calibrate, maintain and operate any ambient sulfur dioxide monitoring equipment, in operation within the area of the smelter enclosed by a circle with 10-mile radius as calculated from a center point which shall be the point of the smelter's greatest sulfur dioxide emissions. [A.A.C. R18-2-715.02.E]

2. Only those methods which have been either designated by USEPA as reference or equivalent methods or approved by the Director shall be used to monitor ambient air. [A.A.C. R18-2-215(A)]

3. Quality assurance, monitor siting, and sample probe installation procedures shall

be in accordance with procedures described in the Appendices to 40 CFR 58. [A.A.C. R18-2-215(B)]

4. The Director may approve other procedures upon a finding that the proposed procedures are substantially equivalent or superior to procedures in the Appendices to 40 CFR 58. [A.A.C. R18-2-215(C)]

5. Unless otherwise specified, interpretation of all ambient air quality standards contained in this Section shall be in accordance with 40 CFR 50. [A.A.C. R18-2-216(A)]

6. The evaluation of air quality data in terms of procedure, methodology, and concept is to be consistent with methods described in A.A.C. R18-2, Appendix 10, "Evaluation of Air Quality Data". [A.A.C. R18-2-216(B)]

B. PM_{10}/METALS MONITORING- SPECIFIC REQUIREMENTS

The Permittee shall operate, maintain, and calibrate an ambient PM_{10}/metals sampling network consisting of two sampling sites located at the Miami Golf Course and the Miami Ridgeline. The Permittee may cease the monitoring outlined in this section if it receives prior written notice from the Director. The Permittee shall conform with the following criteria for the network:

1. Samplers: Anderson Dichotomous sampler GMW241 or equivalent.

2. Sample size to be measured:

   2 size ranges, 0-2.5 microns and 2.5-10 microns.

3. Sample Laboratory Analysis:

   Each sample in both size ranges shall be weighed and concentrations calculated and reported as twenty-four hour average concentrations in $\mu g/m^3$. Also, for each calendar quarter and for each site, the sample in each size range yielding the highest particulate concentration shall be analyzed using X-ray fluorescent (XRF) to determine the arsenic and cadmium emissions. The elemental mass concentrations shall be determined and recorded in twenty-four hour concentrations expressed as $\mu g/m^3$.

4. Quality Assurance:

   A collocated sampler shall be run at the Miami golf course site. All samplers shall be maintained, operated, and calibrated in accordance with 40 CFR 50 and

CFR 58, Appendices A and E, with the latest revision of Section 2.10 of the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume II, U.S. Environmental Protection Agency. The Permittee shall also participate in performance audits conducted by ADEQ.

5. Reports:

A quarterly report summarizing the data collected pursuant to this section shall be submitted before the last day of the following quarter. The report shall contain the following information specified by site. All concentrations shall be presented in $\mu g/m^3$.

a. Date of each measurement.

b. Total 0-2.5 micron (fine fraction) mass concentration for each measurement.

c. Total PM_{10} mass concentration for each measurement.

d. Average PM_{10} total mass concentration for the quarter.

e. Average $PM_{2.5}$ total mass concentration for the quarter.

f. Maximum and second highest PM_{10} concentration for the quarter and date of occurrence.

g. Maximum and second highest $PM_{2.5}$ concentration for the quarter and date of occurrence.

h. The results of laboratory analysis performed for the elemental mass concentrations required above.

7. Sampling Frequency:

Samples shall be collected on every sixth day midnight to midnight coincident with the national six-day midnight to midnight sampling schedule.

8. Site Relocation:

Should the ADEQ request relocation of monitoring sites to alternate locations, the monitors shall be operating at those locations within 120 days of receipt of written notification provided PDMI can secure the necessary utilities and approvals. [Condition I.A of Significant Revision #1000340 to Installation Permit #1232]

C. SULFUR DIOXIDE AMBIENT MONITORING

The Permittee shall operate, maintain, and calibrate an ambient monitoring network consisting of two continuous ambient sulfur dioxide monitors located at Townsite and Jones Ranch. The Permittee may cease the monitoring outlined in this section if it receives prior written notice from the Director. The Permittee shall conform with the following criteria for the network:

Each fixed ambient sulfur dioxide monitor system shall consist of three elements: a sample handling system, an analyzer, and a data acquisition system. The sample handling system and analyzer shall meet the following technical specifications:

1. Sample handling system: a sample line shall be constructed of teflon or glass and be such that the inlet port is three to six meters above ground level. The sample line shall be installed in such a manner that sample air flow shall not be unduly influenced by the immediate surroundings.

2. Analyzer: the sulfur dioxide analyzer shall meet ADEQ requirements for reference and equivalent methods contained in R18-2-715.02.E with the following additions:

    a. Range: the range of each analyzer shall be 0-2 ppm unless written notification of a change is received from ADEQ.

    b. Fixed ambient sulfur dioxide monitors shall be operated and maintained in accordance with the manufacturer's specifications. When actual operating experience reveals the need for additions or modifications to manufacturer's specifications, such modifications shall be approved by the Director and a written record shall be maintained of the results of the modifications.

3. Calibration and maintenance requirements:

    a. A primary calibration for each ambient sulfur dioxide analyzer and associated data recording system shall be performed at intervals specified by the manufacturer, but the interval shall not exceed three months.

        (1) The primary calibration shall meet the following requirements:

            (a) They shall be performed according to manufacturer's specifications using calibration equipment traceable to the National Bureau of Standards.

(b) They shall be done for a minimum of six concentrations and zero, four concentrations between 0 and 1 ppm, and two concentrations between 1 and 2 ppm.

(c) They shall be performed at the monitoring site.

(2) On-site accuracy checks shall be performed at least bi-weekly and shall meet the following requirements:

(a) They shall be performed using an NBS traceable cylinder gas or verified equivalent sources approved by the Director.

(b) They shall be performed for zero sulfur dioxide concentration and for concentrations at 10% and 80% of the analyzer range.

(c) If the analyzer output for accuracy checks at zero or 80% of the analyzer range deviates by more than ±15 percent of the standard gas concentration or ± one percent (1%) of full scale, whichever is greater, a primary calibration of the analyzer shall be performed. The ambient data measured by the analyzer shall be invalidated back to the previous primary calibration or bi-weekly accuracy check. If the bi-weekly accuracy check is found to be inaccurate and is caused by a source external to the analyzer, the operator shall identify and correct the problem and rerun the accuracy check. A successful rerun of the accuracy check precludes the requirement to perform another primary calibration. The ambient data shall be invalidated as required above unless the cause of the inaccuracy found in the initial check did not affect the accuracy of the ambient data measured during the period prior to the check.

(d) Performance of equipment maintenance, calibration, and accuracy checks shall be coordinated with on-duty personnel in order to meet the following requirements:

i. To prevent data loss, maintenance, calibration, accuracy checks, and audits shall be performed at times when the ambient concentration of sulfur dioxide at the monitor is zero.

ii. If such maintenance, calibration, accuracy checks, and audits cannot be performed in accordance with d.i. above, they shall be performed so as to prevent data interruption when sulfur dioxide concentrations are occurring or are expected to occur which would be significant regarding compliance or noncompliance with the ambient sulfur dioxide standards.

iii. The Permittee shall also participate in performance audits conducted by ADEQ.

(e) The ambient sulfur dioxide data acquisition system shall meet the following requirements:

Redundancy -- The sulfur dioxide analyzer output shall be recorded by at least two independent recording systems. In addition to entry into a data acquisition system, the analyzer signal shall also be recorded at each monitoring station by an analog recorder. The analog recorder shall provide a visual and permanent record of the analyzer signal accomplished by direct connection to the analyzer. The recorder shall have accuracy of ±one percent of full scale, a full scale response time of less than five seconds and minimum chart speed of two centimeters per hour. The operational data acquisition system shall be accurate to ±one percent of full scale, including any signal conditioning, transmission and computer handling.

[Condition I.B of Significant Revision #1000340 to Installation Permit #1232]

D. Permit Shield

Compliance with the terms of this section shall be deemed compliance with A.A.C. R18-2-215, A.A.C. R18-2-216, A.A.C. R18-2-715.02.E, and Condition I of Significant Revision #1000340 to Installation Permit #1232. [A.A.C. R18-2-325]

ATTACHMENT "C"

EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES *

Air Quality Control Permit No. 1000046
For
Phelps Dodge Miami, Inc.

EMISSION POINT (1)	SOURCE NAME(2)	SO2 (3)		Particulates (4)		Pb(5)	
		#/hr	T/Y	#/hr	T/Y	#/hr	T/Y
001	Acid Plant Tailgas Stack	820.00	3515	20.40	87.67	0.10	0.44
002	Vent Fume Stack	312.00	1336	46.30	198.70	24.80	105.30
003	Concentrate Bin Vent			0.08	0.32		
004	Concentrate Bin Vent			0.08	0.32		
005	Revert Bin			0.08	0.32		
006	Coal Bin			0.08	0.32		
007	Flux Bin			0.08	0.32		
	Fugitives (**)	1288	5517			10.38	44.45
	Totals	2420	10368				

(1). Emission point identification - either specific equipment designation or emission point number from the plot plan
(2). Specific point source name. For fugitive sources use area name or fugitive source name
(3). Sulfur Dioxide. #/hr emissions are annual averages over the preceding 12 months
(4). Particulate matter
(5). Lead

* Emission rates are based on the following operating schedule: Hours/day____Days/week____Weeks/year____Hours/year: 8760

**Fugitive emissions will not be subject to an individual emission limit. They will be regulated by the emission cap identified in the table.

ATTACHMENT "D":SULFUR BALANCE METHODOLOGY

Air Quality Control Permit No. 1000046
For
Phelps Dodge Miami, Inc.

PROCEDURES FOR UTILIZING THE SULFUR BALANCE METHOD FOR DETERMINING SULFUR EMISSIONS

I. DETERMINATION OF SULFUR EMISSIONS FOR THE SMELTER AS A WHOLE SHALL BE SUBJECT TO THE FOLLOWING CONDITIONS:

A. The emission sum shall apply to all process sulfur emitted into the ambient air from smelter processing units and sulfur control and removal equipment associated with the smelting process. The total monthly amount of sulfur emissions is equal to the weight of the total sulfur introduced into the smelting process in any calendar month minus the weight of all sulfur removed from the smelting process streams in that month in any physical form, plus or minus the weight of the sulfur contained in any month-month decrease or increase necessary to indicate materials in process. Removed sulfur shall include but not be limited to sulfur contained in slag, blister copper, sulfuric acid, liquified sulfur dioxide, elemental sulfur, flue dust, precipitator dust, acid plant sludge, scrubber effluent and absorption plant purge. All unremoved sulfur, including fugitive sulfur emissions, shall be considered as emissions to the ambient air.

B. Material balances for sulfur described in A.1. above shall be obtained in accordance with the procedures listed in this Appendix which are equivalent to Appendix 8 to A.A.C. Title 18, Chapter 2.

C. Average daily emissions are to be determined by dividing the total monthly emissions by the number of operating days in the particular month.

II. CALCULATING INPUT SULFUR

Total sulfur input is the sum of the product of the weight of each sulfur bearing material introduced into the smelting process as calculated in A.1 below multiplied by the fraction of sulfur contained in that material as calculated in A.2 below plus the amount of sulfur contained in fuel utilized in the smelting process as calculated in A.3 below.

A. Material Weight.

All sulfur bearing materials, other than fuels, introduced into the smelting process shall be weighed. Such weighing shall be subject to the following conditions:

1. Weight shall be determined on a belt scale, rail or truck scales, or other weighing device.

2. Weight shall be determined within an accuracy of ±5 percent.

3. All devices or scales used for weighing are to be calibrated to manufacturer's specifications. Scales will be calibrated at least quarterly.

4. Sulfur bearing materials subject to being weighed shall include but not be limited to concentrate, cement copper, reverts which are discarded and not part of the internal circulating load, and precipitates. Materials such as limestone and silica flux which are mixed with a charge of sulfur bearing materials shall be weighed and reported.

B. Sulfur Content.

The sulfur content of all sulfur bearing materials introduced into the smelting process shall be calculated using the following steps:

1. Sampling - The procedure to be followed in sampling is dependent upon the input vehicles for the sulfur bearing material.

   a. Railcar - The smelter operator shall collect a sample using the auger method. Two holes per car will be taken and combined with the total sample not exceeding 20 pounds. Ten cars or less from the same source will be combined into one lot.

   b. Truck - The smelter operator shall collect a sample using the auger method. Samples are to be taken from two points using the auger method. Shipments from other Phelps Dodge Mines may be sampled at the mine site provided each truckload is sampled. Samples will be combined at Miami into lots from

trucks delivering material from the same source. For fluxes from PDMI controlled mines, one truckload per day will be sampled.

2. Sample Preparation - Each total sample shall be prepared for analysis in the following manner:

   a. If necessary, the sample shall be crushed to minus quarter inch particles.

   b. Each sample is to be thoroughly blended in a roto-cone blender or similar device.

   c. A blended composite sample is to be prepared based on individual sample weight and moisture. Material to be used in the composite sample is to be cut with a sample scoop or knife and used to make a 2400 gram composite sample for each lot.

   d. Each composite sample is to be dried and then pulverized to minus 80 mesh using a roto-disc pulverizer or similar equipment and then blended in a roto-cone blender or similar equipment.

   e. A 200 gram portion is to be cut from the composite sample for analysis.

3. Sample Analysis.

   a. The sample shall be analyzed to determine sulfur content using X-ray Fluorescence Spectroscopy (XRF) or Inductively Coupled Plasma Spectroscopy (ICP). The accuracy of such an analysis will be within a range of ±1 percent.

4. Sulfur Determination.

   The sulfur content of all feed material treated per month will be determined by month end physical inventories in conjunction with certified scales for bed contents. Physical inventory determines beginning and ending bed for each month and all beds processed during the month, together with inventory changes for secondaries. Based upon individual lot

numbers for each material processed (i.e. concentrates, reverts, purchased secondaries, Resource Recycling material, and fluxes) the composite analysis will be used to determine sulfur input.

C. Fuel Sulfur Content.

Sulfur in fuels shall be calculated by multiplying the amount of fuel delivered to the process by the fraction of sulfur in the fuel as reported to the smelter operator by the fuel's supplier. The sulfur content determination shall be accurate to within ±5 percent.

III. CALCULATING REMOVED SULFUR

Total removed sulfur is the sum of the sulfur removed in each of the following products as determined by each process set forth below.

A. Electric Furnace Slags.

1. The weight of the slag shall be determined using a count of furnace slag ladles. The weight used for slag in slag ladles will be determined periodically.

2. A sample will be collected from each slag ladle during tapping operations. This sample is collected using a sampling spoon which collects a three to five pound sample.

3. The sample shall be prepared and analyzed for sulfur. The sample will be dried, pulverized using a roto-disc pulverizer, then a 200 gram sample will be split out using a Jones splitter, or equivalent.

4. The sample will be analyzed as in B.3 above.

B. Scrubber Sludge.

1. For sludge that is collected (as a slurry), clarified, and filtered before transportation to a solar drying pad as a sludge, a truck payload weight will be determined. The sludge will be sampled each time a truck is filled. The sample will be prepared and analyzed for sulfur and copper using the procedures in II.A.3 and II.B.3 above.

2. If scrubber sludge is managed in a manner other than as set forth in III.B.1 above, it shall be quantified, sampled, and analyzed pursuant to generally acceptable methods.

C. Strong Acids.

1. The daily production of acid shall be determined by using either a flowmeter which measures all acid added to the storage tanks from which trucks or rail cars are loaded, or a daily inventory increased by the amounts of acid shipped or otherwise transferred during that day.

2. The meter reading or daily inventory will be accurate to within ±5 percent.

3. The acid stream from the acid plant will be monitored for specific gravity at least once every two hours.

4. Strong acid samples will be analyzed for sulfuric acid using specific gravity methods corrected for temperature. Sulfuric acid analyses will be converted to grams per liter of sulfur.

5. The acid stream will be sampled twice per shift and specific gravity will be measured by hydrometer to check sensor accuracy.

6. One tank sample will be sent to the laboratory for analysis daily.

7. All flow meters, density gauges, sonic sensors, pressure sensors, etc., used in determining the sulfur balance will be calibrated according to manufacturer's specifications at least quarterly.

D. Weak Acids.

1. The amount of weak acid discharged from the acid plant and scrubber systems is to be determined through flow meters.

2. Flow meters will be calibrated as in C.7 above.

3. A 100 ml sample of weak acid shall be collected daily and combined in a sample container to form a weekly composite

sample which is analyzed weekly for sulfur content using the Barium Sulfate Gravimetric Method.

E. Sulfur in Copper Production.

1. The weight of copper produced is to be determined by weight of copper cast to an accuracy of within ±5 percent.

2. The weight and number of castings shall be recorded.

3. Three sample bars per copper anode charge are to be obtained at the beginning, middle, and end of each pour. A portion (approximately 1 gram) from each sample is to be analyzed for sulfur content using a LECO Sulfur Analyzer with an induction furnace to volatilize the sulfur and measure the resultant compound using Infrared Spectroscopy to an accuracy of within 50 percent. As an alternative, a slab cut from the bar will be analyzed using an Optical Emission Spectrometer (using time resolved spectroscopy).

F. Materials in Process.

1. Total tonnage of materials in process shall be determined by physical inventory on the first day of each month.

2. A monthly change of in-process inventory shall be calculated for each material in process by taking the difference between the inventory from each material in process on the first day of the preceding month and multiplying that difference by the monthly composite sulfur assay for that material.

3. The change of monthly in-process inventory must be accurate to within ±50 percent.

ATTACHMENT "E": EQUIPMENT LISTING

Air Quality Control Permit No. 1000046
For
Phelps Dodge Miami, Inc.

Description	Manufacturer	Model or S/N	Equipment # Miami	Plant #	Installed
ROD PLANT					
Shaft furnace 15-burners	Asarco	24 tons per Hr.	12254	MIR1030	before 1970
Holding furnace 1-burner	Lindberg	10 tons capacity	12291	MIR1050	before 1970
Casting structure (SCR)	Southwire	84-inch wheel	12350	MIR1060	before 1970
Roughing mill	Morgan Mills			group MIR134	before 1970
Finish mill	Morgan Mills			group MIR133	before 1970
Pickling System	Southwire		12459	MIR3010	before 1970
Coiler	Morgan mills		12348	MIR1097	before 1970
Thermal Breaker	Fulton Thermal Corp.	FT-0080-C	12690	MIR8567	1984
Rod Plant Cooling Tower	Flour	Counter Flow 1F60H-126-2424	12472	MIR3500	before 1970
Alcohol Tank #1			12456	MIR3007	1984
Alcohol Tank #2			12465	MIR3016	1984
Used Oil Tank #3			12458	MIR3009	1984

Description	Manufacturer	Model or S/N	Equipment # Miami	Plant #	Installed
Used Oil Tank #4			12461	MIR3012	1984
ELECTROLYTIC REFINERY					
steam boiler 12,500 lb/hr 16.7mmbtu/hr	Johnston Boiler Co. mfg'd 1994	PFTA 400-4G-150S S/N 916301-01	10243	MIE10BR001A	1994
steam boiler 12,500 lb/hr 16.7mmbtu/hr	Johnston Boiler Co. mfg'd 1994	PFTA 400-4G-150S S/N 916301-02	10244	MIE10BR001B	1994
Anode wash machine demister	AISCO	94-1065	10469	MIE20SK003	1994
Cathode wash machine demister	TM Engineers	9123	10470	MIE20SK005	1994
Decant scrubber system #1	Carbotech	HRP43-48	10533	MIE20SK006	1994
Decant scrubber system #2	Carbotech	HRP43-48	10544	MIE20SK007	1994
Autoclave Scrubber	Carbotech	HRP43-48	10705	MIE20SK001	1994
Slimes dryer baghouse	Flex-Kleen	36BVBC9	10685	MIE30BH001	1994
Prep machine cyclone	Hoffman Centrifugal Exhauster	MT2B06 TVAC200	10468	MIE20MA001	1994
Sulfuric acid tank			10402	MIE10TK042	1994
SMELTER					
IsaSmelt furnace	Mt. Isa		14023	MISISA30010	1991

Description	Manufacturer	Model or S/N	Equipment # Miami	Plant #	Installed
start up/holding burner for Isa vessel	North American	MISIVB	14032	MISISA30040	1991
Boiler, Isa aux. 10,000 lb/hr steam 10.4 mmbtu/hr	Vapor Corp. mfg'd. 1991	HS2-H8500-VHK300 HS2H85	13959	MISISA00385	1991
Diesel emergency generator (Isa)	Detroit	12V-92 572R2l5040 BP-104W	14261	MISV0111	1991
Electric furnace	Elkem		10309	MISELEFURNACE	1974
#1 (Inspiration) converter	Inspiration		10277	MISCONVETER1	1981
Hoboken con-verter #2	Hoboken		10278	MISCONVETER2	1974
Hoboken con-verter #3	Hoboken		10279	MISCONVETER3	1974
Hoboken con-verter #4	Hoboken		10280	MISCONVETER4	1974
Hoboken con-verter #5	Hoboken		10281	MISCONVETER5	1974
Conv. air heater #3	J T Thorpe	MISI0556.2E	14147	MISI0556.2E	1986
Conv. air heater #5	J T Thorpe	MISI0556.3E	14153	MISI0556.3E	1987
Conv. air heater #4	J T Thorpe	MISI0556.4E	14159	MISI0556.4E	1987
Conv. air heater #2	J T Thorpe	MISI0556.5E	14165	MISI0556.5E	1987

Description	Manufacturer	Model or S/N	Equipment # Miami	Plant #	Installed
Anode Vessel #1	Pierce-Smith		13292	MISC0555.1	1987
Anode Vessel #2	Pierce-Smith		13293	MISC0555.2	1987
Remelt/Mold pouring fur-nace	Pierce-Smith		13357	MISC0610.18	1974 or earlier
Acid plant preheater	North American	MIC201	12790	MISAC201	1997
Diesel feedwater pump	Cummins	NT855 P280	14262	MISV0112	1988
Diesel emergency generator	Caterpillar	D398TH	14260	MISV0110	1973
Acid plant			12967	MISACIDPLANT	1974
dust collector, flux bin 1000 acfm	Donaldson	16PJD6	14016	MISISA20130	1991
dust collector, coal bin 1000 acfm	Donaldson	16PJD6	14017	MISISA20131	1991
dust collector, reverts bin 1000 acfm	Donaldson	16PJD6	14018	MISISA20132	1991
dust collector, conc bin 040, 3000 acfm	Donaldson	16PJD8	14019	MISISA20133	1991
dust collector, conc bin, 3000 acfm	Donaldson	16PJD8	14020	MISISA20134	1991
Vent Fume scrubber	Airpol		13884	MISF45032	1991
Dust collector mag oxide bin	Griffin Environmental		13889	MISF45045	1991

Description	Manufacturer	Model or S/N	Equipment # Miami	Plant #	Installed
Acid plant tail stack scrubber	Airpol		13086	MISA60050	1991
Dust collector mag oxide bin	Griffin Environmental		13087	MISA60055	1991
Sulfuric acid tank #1			13025	MISAT3011	1974
Sulfuric acid tank #2			13024	MISAT3012	1974
Sulfuric acid tank #3			13022	MISAT3013	1974
Sulfuric acid tank #4			13023	MISAT3014	1974
“A” Cooling Tower	Ecodyne		13026	MISAT401A	1974
“B” Cooling Tower	Ecodyne	E60-12076	13027	MISAT401B	1970 modified in 1985
“C” Cooling Tower	Ecodyne		13035	MISA00750	1992
“E” Cooling Tower	Ecodyne	2- 24x24 cells	31200	MISF210	1997
“D” Cooling Tower (Not in service)	unknown		13016	MISAT1005	1978